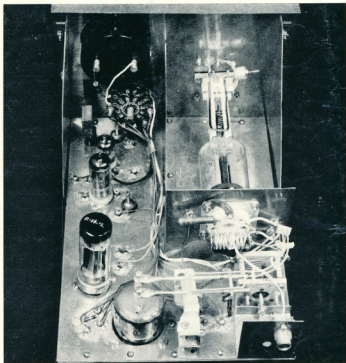


A M A T E U R R A D I O

NOVEMBER 1963



Vol. 31, No. 11



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OUR COVER

For full details of this month's
cover photograph refer to Single
Sideband on 432 Mc. on page 15.

FEDERAL COMMENT



In April 1963 the Secretary-General, International Telecommunications
Union, Geneva, invited the Australian Government, together with all
member administrations, to send a delegation to the Extra-ordinary Admin-
istrative Radio Conference to allocate bands for Space Radio communica-
tion purposes which opened in Geneva on 7th October this year.

To deal with problems which will arise as a result of proposals for
frequency allocations for the Space Service, Postmaster-General Davidson
formed a special Ad Hoc Committee to which the Wireless Institute of
Australia was invited as a voting member representing the Amateur Service.

Known as the Radio Frequency Allocation (Space Service) Committee
it has worked over the past many months to determine the brief for the
Australian Delegation to Geneva. At the numerous meetings held in Mel-
bourne and Canberra, the Wireless Institute of Australia has been rep-
resented by Mr. Arthur Ernest Tinkler, VK3ZV, whose expenses have been
paid by the Government.

As a result of his expert co-operation and his knowledge of the prob-
lems involved during the deliberations of this Committee, the Government
invited the W.I.A. to send an observer representative with the Australian
Delegation to Geneva. This was accepted and after discussions with
Federal Executive, Mr. Tinkler undertook the representation of the
Amateur Service at the Conference.

Deliberations in respect of the Space Service requirements involved
many services and therefore of necessity the activities of the Committee
were of a restricted nature. However, through its representative the Wire-
less Institute of Australia kept close watch on the problems involving our
v.h.f. and u.h.f. assignments and, at the final meeting of the Committee,
the status quo was maintained.

Never before has the world-wide Amateur Service faced such problems
relative to its frequency assignments as it has faced in the last decade and
it must expect to face even greater problems in the future. To deal with
these problems representation at Government level is imperative and it is
the role of the Wireless Institute of Australia to act for the VK Amateurs.
The Institute has pledged itself to do this with all its might despite oppo-
sition from mis-informed sources, contending that it is unable to do anything
effective. It has successfully campaigned to have representation at Gov-
ernment level on frequency allocation committees and the work of its
representative has been praised by responsible officials. Because its mem-
bers belong to a Service with quite wide overall frequency allocations it
is in the best interests of all other frequency users that the Institute plays
its effective part in formulating any plan for the successful engineering of
the frequency spectrum on an equitable basis.

To say that the Institute can do nothing about Amateur problems is
foolish. To say that it should do everything in its power to protect the
Amateur frequency allocations is realistic thinking! The ill-informed few
who say we are unable to do anything would be the first to say . . .
"why didn't the W.I.A. do something" . . . if the future wrecked our chances
and we indeed had done nothing!

FEDERAL EXECUTIVE, W.I.A.

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Modification of the 522 Equipment for F.M. Operation

Part Two—THE RECEIVER

E. C. MANIFOLD,* VK3EM

THIS section has, in the past, been rather neglected, mainly due to the lack of selectivity for a.m. use without a good deal of work being done to improve this fault. (A fault so far as Ham's are concerned, but satisfactory for the original purpose.)

This still applies, but to a lesser degree, since we want a bandwidth of approximately 30 Kc. to accommodate the f.m. deviation in present use on 145 Mc.

R.F. AND MIXER SECTIONS

The modification follows the suggestions as published in "QST" a few years ago by Robert E. Fairbrother, WIPYO ("QST," April 1949).

The 9003s in r.f. and mixer valve sockets are removed and replaced with 6AK5s, but this is not the only story as the 6AK5s will "take off" so it will be necessary to alter the front end as follows.

Remove the front end r.f. and mixer sub-chassis from the set and remove stator and rotor plates, leaving two stator plates and one rotor plate in each section, which will give a tuning range of 120 to 130 Mc. with the trimmers fully in, and 135 to 165 Mc. with the trimmers fully out, so don't be timid about removing the plates.

It is important that you exercise great care when doing this because the fragile ceramic rotor shaft is easily broken.

Removal of Condenser Plates

After finding that there have been some of the local Hams that have tried to remove plates from this tuning gang and broken the shaft, it was thought that it might be a good idea if these notes were included to assist and to help avoid the breakages that have been experienced.

The actual removal, though being a bit difficult, is mainly a matter of care and patience, the technique being quite simple.

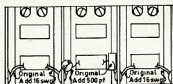


Fig. 1. Extra earthing & bypass on RF & Mixer Tuning gang.

First remove the tuning gang from the chassis so as to get at both sides of the stator plates with ease. The rotor is turned to the opposite side stator section and work is commenced on the cleared stator section.

Take a sharp, narrow pair of sidecutters and insert the points only of the blades between the outer plates and snip through the top support bar. The correct side of the sidecutters to use

will be seen after the first section of the bar is cut, as one side of the cutters will not affect the rest of the plates and will leave the bar holding the remaining plates firmly.

This allows the first plate to be spread from the others with a screwdriver, then take the long-nosed pliers, push them right down as far as possible and grip the plate firmly, proceed to twist the pliers, side to side, until the solder at the base gives away.

Treat each plate separately until there are two plates left at the centre of the gang, on opposite sides, corresponding to each other.

Alternatively, a small fretsaw or jeweller's saw may be used to cut through each part of the support bars before removal of each plate.

Now the ticklish operation of removing rotor plates is tackled. Turn the rotor plates until the centre of the plates are facing outwards, clear of both stator plates.

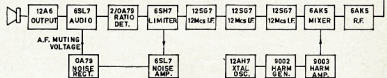


Fig. 2. Block diagram of single conversion.

Gently push a screwdriver down between the outer plates and spread the outside plate far enough from the other to slip the long-nosed pliers at least half way down the plate.

Grip the plate with the pliers firmly and start to twist the plate with the pliers gently, side to side, a little at a time, increasing the movement as the solder starts to break away at the points of the rotor plate where soldered to the metal section around the ceramic shaft.

To avoid too much strain on the ceramic shaft while this operation is being done, the gang should be held in the hand, the fingers gripping the remaining plates at the sides while twisting. This will assist in taking the pressure off the ceramic section of the shaft.

It is not advisable to hold the gang in a vise as it is easier to feel how much pressure is being applied when the gang is hand-held.

With care in the initial stages, one gets the feel of how well the plates come out, but be patient until you remove one or two plates, or you will find that there is no need to remove any more plates if the shaft gives up the struggle. There are few replacements to be obtained to try on again.

Continue with the removal of the rotor plates until there is but one plate in each section of the gang, corresponding to the two remaining plates in the stators.

The gang can then be replaced in the chassis and all connections remade, although it is a good idea to do all the modifications to the ant., r.f. and mixer sections by replacing the coils, etc., at the same time as this part, while out and easy to get at.

From remarks heard passed on occasions, it seems that there have been quite a few casualties when attempting to do this job, but by using this method there have been three modifications done at this QTH without a failure to date.

Should you be unfortunate enough to break the ceramic shaft when attempting to remove the rotor plates, it would be satisfactory to only use the trimmers to peak the coils if only one channel operation was required, but it may be found that for more than one channel a compromise tuning would have to be made. Since this has not arisen to date at this QTH, it is a suggestion which may be of some use. I hope that you don't have to apply it.

(Do not alter the two-gang section containing the 9002 and 9003 harmonic generator and harmonic amplifier.)

Replace the existing two-turn coils in each section with three turns of 16 s.w.g. tinned, or preferably silver plated copper wire, and the original aerial coil with two turns of similar wire, taking care to observe the original winding direction and spacing, as this is important.

Remove the original r.f. and mixer grid coupling condensers and resistors and replace with the smallest 33 pF ceramic condensers available, to be connected between the valve pin lug and the gang coil mounting pillar. Reconnect the original grid resistor across this condenser, both with the shortest leads possible.

By-pass the r.f. cathode resistor with the 680 pF condenser removed from the a.v.c. line which is now earthed.

Remove the existing r.f. screen dropping resistor and replace with 15K, 1 watt, for the 6AK5.

It will be noted that there is an existing earth connection from the tuning gang sections to frame at aerial, r.f. and mixer positions, as shown in Fig. 1. An additional earthing wire must be added as shown, together with a 500 pF, by-pass for the r.f. plate section, using leads as short as possible in each position.

Remove the mixer cathode resistor and short the valve pin lug as direct as possible to frame (earth).

*287 Jasper Road, McKinnon, Vic.

The existing plate decoupling resistor for the mixer is removed and is replaced with two 20K, 1 watt, parallel resistors as common dropping decoupling resistance for the mixer and r.f. stages, to provide 150v. maximum. This resistor may be subject to variation depending on the h.t. voltage available. These modifications will provide a sensitive and stable front end with approximately 10 to 12 db. gain over the original 9003s.

Two versions of this modification have been made, single and double conversions, the single conversion being the original 12 Mc. i.f. amplifier with the addition of a limiter, ratio detector, noise amplifier and rectifier (for muting), and altered audio section. See Fig. 2 for block diagram.

Which i.f. amplifier you decide on is a matter of choice, or requirement, but it can be said that the double conversion is very much better than the single conversion as it is possible to achieve 1 μ V. sensitivity with the double conversion as against 3 μ V. for the single conversion at 145 Mc.

12 Mc. Version
As previously mentioned, the a.v.c. is removed entirely since we want as strong a signal as possible to the limiter input to provide signal saturation of this stage. This will give a semi constant level to the ratio detector and, more important, a fairly constant audio output level, which will allow the gain control to be set for average listening level from the speaker over a very wide range of signal input levels.

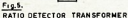
are removed from the a.v.c. connection on each i.f. transformer and this point is earthed by securing a solder lug under the nearest can-securing nut and soldering to the i.f. connecting pin, with the exception of the limiter grid which should be wired as shown in Fig. 4.

It was also found necessary to increase the values of the second i.f. valve cathode resistor to 400 ohms to prevent instability. Care should be taken to decouple and by-pass h.t. leads if instability is experienced.

- | | | | |
|---------------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|
| 207-10 pF., 500V. | 213-1 μ F., 100V. | 255-1.8 megohms, $\frac{1}{2}$ W. | 271-82K ohms, 1W. |
| 202-0.0068 μ F., 300V. | 214-82 pF., 2%, 500V. | 256-1,000 ohms, $\frac{1}{2}$ W. | 272-1.20K ohms, 1W. |
| 203-47 pF., 500V. | 215-No part. | 257-330K ohms, $\frac{1}{2}$ W. | 273-5.6K ohms, $\frac{1}{2}$ W. |
| 204-15 pF., 500V. | 216-6-36 pF. tuning gang. | 258-680K ohms, $\frac{1}{2}$ W. | 274-2.2 megohms, 1W. |
| 205-220 pF., 500V. | 217-Tuning gang. | 259-10 ohms, $\frac{1}{2}$ W. | 275-4.70K ohms, 1W. |
| 206-0.006 μ F., 300V. | 218-Tuning gang trimmers. | 260-27K ohms, $\frac{1}{2}$ W. | 276-18K ohms, 1W. |
| 207-60 pF., 500V. | 221-to 228-Inductors. | 261-1,200 ohms, $\frac{1}{2}$ W. | 277-1.8K ohms, 1W. |
| 208-15 pF., 5%, 500V. N880K ceramic. | 226-150K audio gain pot. | 262-560K ohms, $\frac{1}{2}$ W. | 278-1.5K ohms, 1W. |
| 209-100 pF., 500V. | 237-2,000 ohms squeech pot. | 263-4.7K ohms, $\frac{1}{2}$ W. | 279-4.7K ohms, 1W. |
| 210-330 pF., 500V. | 241-R.F.C. | 264-10K ohms, $\frac{1}{2}$ W. | 280-1 megohm, 1W. |
| 211-0.1 μ F. three-section, 400V. | 246-Squeech relay, 5,000 ohms. | 265-2.7K ohms, $\frac{1}{2}$ W. | 281-1.50K ohms, 1W. |
| 212A-10 μ F., 350V. | 251-0.47 megohm, $\frac{1}{2}$ W. | 266-270K ohms, 1W. | 282-3.3K ohms, 1W. |
| 212B-20 μ F., 350V. | 252-0.1 megohm, $\frac{1}{2}$ W. | 267-1,00K ohms, 1W. | 291-to 294-I.F. Transformers. |
| 212C-5 μ F., 150V. | 253-330 ohms, $\frac{1}{2}$ W. | 268-380 ohms, 1W. | 295-Audio input transformer. |
| 213D-5 μ F., 150V. | 254-6,800 ohms, $\frac{1}{2}$ W. | 269-270 ohms, 1W. | 296A-Audio output transformer. |
| | | 270-470 ohms, 1W. | 296B-Audio core 8 H γ , 50 mA. |

For operating, set the muting pot. just at the edge of muting which will ensure that the receiver will unmute with a weak signal. Screwing this control up too far will bias the audio valve well over cut-off and weak signals will be missed.

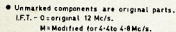
The ratio detector transformer is made from an old pattern $1\frac{1}{4}$ " square can 455 Kc. i.f., stripped of the original windings and condensers, and re-wound to the following details and connections, as shown in Fig. 5 for both the 4.4 Mc. and 12 Mc. versions.



Secondary capacitor: 50 pF. mica.

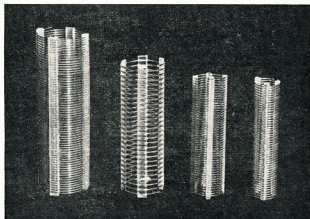
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Page 5

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1-16	$\frac{1}{2}$ "	16	3"	No. 3003	5/3
2-08	$\frac{3}{8}$ "	8	3"	No. 3006	6/3
2-16	$\frac{3}{8}$ "	16	3"	No. 3007	6/3
3-08	$\frac{3}{8}$ "	8	3"	No. 3010	7/4
3-16	$\frac{3}{8}$ "	16	3"	No. 3011	7/4
4-08	1"	8	3"	No. 3014	8/5
4-16	1"	16	3"	No. 3015	8/5
5-08	$1\frac{1}{4}$ "	8	4"	No. 3018	10/6
5-16	$1\frac{1}{4}$ "	16	4"	No. 3019	10/6
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References: A.R.R.L. Handbook, 1961; "QST," March 1959;
"Amateur Radio," December 1959.

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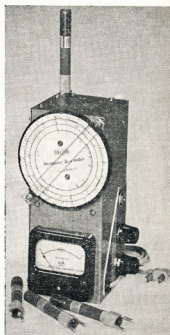
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SIMPLE SIDEBAND

Epilogue

C. G. HARVEY,* VSI AU (Ex VK3UO, VK2AQU)

A FEW years ago I described a simple home-grown phasing transmitter. The article created sufficient interest to tempt me to record a further stage in development.

The phasing rig, crowded on to a Command chassis, provided about 4,000 wonderful QSOs with very few reports below Q5, even when signals were down to S3. Its only component failures have been open-circuit AN54 and AN54A audio transformer primaries. After failure of a third set of transformers, I decided the time had come to try a different method of producing s.s.b.s.c.

This was not due to dissatisfaction with the phasing method, which has really done a wonderful job, and has not been temperamental, as is sometimes alleged. Certainly there is a need to adjust the carrier suppression frequently, but this is such a simple matter that it does not constitute grounds for abandoning the method.

Providing a c.r.o. is available initially, it is child's play to adjust the r.f. phase shift network which, in my experience, will then stay adjusted for a very long time. VK2AQU even survived a rough road and sea journey from the Blue Mountains to Singapore without readjustment! Readers may also recall some tests on a crystal lattice filter which were published in 1961. Whilst this work was educational, it was a slow business to run curves and plot the results. Even more fiddle seemed necessary, if I was to achieve the classical passband in the Handbooks. I know it can be done, and probably with lots of patience and a stock of cheap crystals, one might settle for this method. However, when an opportunity arose to try the brute-force mechanical filter method, I needed little convincing that this was probably the simplest and most effective method. Perhaps it is not the cheapest, but then the time comes when one is prepared to trade time in the workshop and the smell of hot resin for time on the air, operating convenience, and reliability.

The object of the 1963 programme, therefore, was to simplify and improve the s.s.b. exciter, reduce its size and power requirements, and investigate the heresy of transceiving. So, as a result, instead of using eleven tubes to get three watts, I now use five, and reports from stations who have got to know VSI AU/VK2AQU say that the signal is noticeably cleaner and takes up less space on the band just like the book said it would.

Now there is a lot of waffle talked about the amount of carrier and unwanted sideband suppression needed. The jargon is impressive, but I know it has been responsible for frightening

some chaps away from s.s.b. They feel the technicalities of getting that last db. of suppression are beyond their mental or workshop capability, and that as a result their signal will be poor and they may be unable to effect a remedy.

The facts of life at present are that unless you live in a crowded Amateur community where signals are consistently way over S9, it matters little whether or not your carrier suppression is fair or exceptional! As for the unwanted sideband, any half-way decent receiver hacks off the unwanted sideband whether it is transmitted or not.

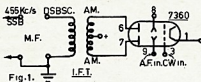


Fig. 1.

The fact that we still tolerate a.m. and double sideband signals is good evidence that perfect suppression of the unused sideband is not essential. Don't get me wrong. Rotten sideband is as objectionable as chirps, yoops and splatter. But there is a happy medium where an s.s.b. signal which might only be graded fair in the laboratory is quite acceptable and probably not noticeably different to its neighbours on the Amateur DX bands. Certainly a signal has to be poor to cause comment. I'll be surprised if you draw fire even when you insert, accidentally or otherwise, a lot of carrier, or degrade the unused sideband.

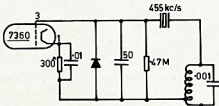


Fig. 2.

The addition of a few components to the balanced modulator enables the grid-cathode to become the carrier generator circuit.

Proof? Sure! VSI AU has often necessarily operated in such conditions for longer than I care to admit, and has drawn only an occasional comment, usually from stations equipped with commercial gear and c.r.o.s. (Note carefully: the same lack of reaction will however be found if you attempt to overdrive!) Nevertheless, for the good of the sport, the radiated signals should be as close as possible (within reason) to the current state of the art.

Because financial and technical considerations exist, one cannot expect a

rank beginner to indulge in double conversion multiband transceivers with optimum specifications. My phasing exciter cost less than the new mechanical filter alone, and this consideration may well be sufficient to justify the use of a phase shift network exciter instead. In deciding how far to go, the rule of thumb seems to be that the necessity for really good suppression increases with the quantity, proximity and tolerance of other Amateurs, and is closely related to frequency! What is A-OK on 14 Mc., may make your ears burn on 31.

Now to some simple sideband practice. The split beam penthode family of tubes like the 6AR5 and the 7360 now make possible a very simple balanced modulator in which to mix the carrier and audio, and suppress the carrier.

By adding a mechanical filter, the unused sideband can be very effectively removed and really good, stable, reliable s.s.b.s.c. obtained. Unfortunately, however, it must be on the frequency determined by the mechanical filter, a nominal 455 kc.

The addition of a few components in the grid-cathode circuitry of a 7360 provides a simple carrier oscillator without the need for an extra tube. Carrier suppression can be obtained by balancing either, or both, the anode and deflection plate circuits.

At this point let me stress the need for shielding and decoupling which is effective at 455 kc. If the carrier generator radiates, it will probably get into the receiver i.f. strip and make like a b.f.o. This may be just what is needed in a single-band transceiver, but it will also cause you some bother when you try to copy the other sideband.

Similarly the 455 kc. carrier can leak around the mechanical filter and spoil the bottom of its nice steep skirts. You probably won't notice it on the air, but the effect is easily measured with appropriate apparatus.

Better button-up the oscillator section in such a way that the output of the mechanical filter is far removed from the oscillator section, and from the power supply leading to it. In my experience, it is a lot easier to put shields in before you start wiring than afterwards.

Make no mistake about the excellency of suppression of the unused sideband by a mechanical filter. Also it is fixed and cannot suffer from maladjustment. Just provide a stable carrier oscillator which sits on the 60 db. point of the skirt and even when signals are S9 plus, the fellows won't be able to hear anything on the unused side of your suppressed carrier frequency. To change sidebands, just swap the carrier generator on to a similar position on the other skirt. Alternatively, swap the v.f.o. on to the other

* Hq. Far East Air Force, R.A.F., Changi, Singapore 17.

† Kokusai MF455/10K.

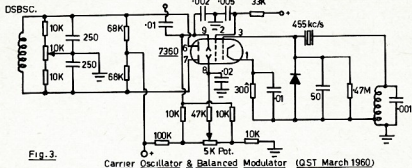


Fig. 3.

Carrier Oscillator & Balanced Modulator (QST March 1960)

side of the transmitter i.f. The crystal method is easier, and helps to sustain v.f.o. stability, by eliminating switching and unnecessary leads in a self-excited stage.

Choice of proper carrier insertion frequencies is simple too. It comes marked on the graph supplied with every Kokusai filter. It is not critical providing you realise that you can be changed into a soprano (or bass) if the frequency used is too far from optimum.

The classical "QST" circuit (March 1960) for a combined carrier oscillator and balanced modulator is shown at Fig. 3. It works very nicely, but can be simplified considerably without noticeable effect.

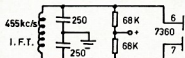


Fig. 4.

First Simplification: Result, r.f. output up by 50%, carrier balance only slightly degraded.

The obvious places to start simplification are in the plate balance circuitry (see Figs. 4 and 5) and in the deflection circuitry (Fig. 6). The arrangement in Fig. 5 is suitable for those with Collins filters. The input to the Kokusai filter is capacitatively unbalanced, and will prevent you getting carrier suppression. The cure is to use an i.f. transformer between the 250 pF. capacitors and the mechanical filter.

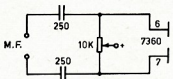


Fig. 5.

Instead of applying lop-sided audio to the deflection plates as in Fig. 3, we can easily use half a 12AX7 as a conventional phase splitter, and so avoid having to d.c. balance the deflection anodes.

The savings over Fig. 3 amount to one i.f.t., one pot., eight resistors and two capacitors, with no obvious change in performance. Also, the whole s.b. generator fits on an empty 1 lb. tin of chocolates, consumed during the planning stages!

Those of you who still use aluminium for chassis, might care to consider the use of tin plate instead. A chocolate tin demonstrates the advantages well. Firstly, by-pass capacitors and shields can be tacked to the chassis exactly where required, proper shielding can be accomplished by soldering the edges of the shield so that there are no r.f. leaks and, of course, feed-through capacitors can be quickly soldered in place without needing the coaxial insulators. There is another advantage too, if the tin snips are missing, the XYLs scissors will cut tin plate quite nicely, and without subsequent comment!

We now have the problem of getting the 455 kc. s.b.s.c. into an Amateur band. This is quite easy, once the mental stumbling block of having mixers in transmitters as well as receivers, is overcome. Although a double conversion transmitter doesn't seem quite right, it is just another application of basic principles, which will work if given half a chance.

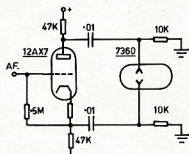


Fig. 6.

Delete d.c. carrier suppression balance voltage and substitute push-pull audio from conventional phase splitter.

In the present single band exciter, I elected to use single conversion from 455 kc. to 14 Mc. Now the greybeards will tell you that you shouldn't do this, because the demon "image response" will get you, outside the Amateur bands too. Well, it might, if you are unlucky with stray C, or careless with Q. Providing you are reasonably sensible with tuned circuitry after the mixer, keep the v.f.o. injection down to sensible levels, and don't overdrive, the chances are that, like me, you won't have any trace of the unwanted image audible in the shack, let alone down the street. The secret is in having sufficient unloaded tuned circuits after

the mixer, which can attenuate an image 910 kc. from signal frequency.

Now with a fixed carrier generator frequency, the v.f.o. injection oscillator decides whether or not you will appear on upper or lower sideband. If you put the v.f.o. on the low side of the 14 Mc. band, and use a 456.4 kc. carrier crystal, you will produce 14 Mc. upper sideband. If you put the v.f.o. on the high side, you will be in for a lonely time, as lower sideband is not used on 14 Mc. without prior arrangement.

If your station receiver happens to have a 455 kc. i.f., it is likely that the local oscillator is also set on the low side of 14 Mc. If so, all that is needed to transceive is length of coax and a small coupling capacitor to the receiver local oscillator. You are then in the transceive business—providing you arrange to mute the receiver when transmitting. This concept can be developed in a number of ways (Fig. 7), but has one shortcoming which is serious.

Unless you can arrange to mechanically or electrically limit the receiver coverage to the Amateur bands, the time will come when an inadvertent out-of-band transmission occurs. This is almost inevitable if the station is vox equipped. Fortunately, my Super Pro receiver now has so much bandwidth that it does not cover the whole of 14 Mc. in one sweep. Consequently, although still possible, the chance of out-of-band transmission is much reduced.

If you do decide to use the station receiver local oscillator which after all is already calibrated, voltage-stabilised and acceptably stable, I suggest you arrange to mark the receiver dial in some way which alerts you when the transmitter, as well as the receiver, is tuned outside an authorised band.

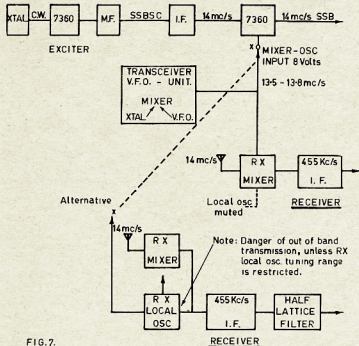
You may feel that extracting some injection voltage from the receiver will degrade the receiver. Most receiver oscillators have loads of oscillator r.f. to spare, and if you take care where and how you pick it off, capacitive loading can be negligible. If necessary, a cathode follower, or a simple valve or transistor isolating stage can be used if distances between the transmitter exciter and receiver are to be large. Due to the extra C, there will be some effect on the receiver's selectivity, but the oscillator trimmer and slug can be used to put the calibration back where they were originally. A minor complication with this system is that unless the mechanical filter passband and the receiver i.f. passband coincide, reception will not occur exactly on the transmitted frequency, and vice versa. Again, this is not critical, because within reasonable limits the receiver b.f.o. frequency can be juggled to take out minor discrepancies.

Personally, I have come to the conclusion that a separate filter in the receiver is a better proposition than using the same mechanical filter for reception and transmission.

The addition of extra connections for the dual role increases the stray C and degrades the isolation across the mechanical filter, and hence spoils its adjacent channel rejection capability. Whilst not going as far as saying two filters are essential, for the present I prefer to retain a simple crystal half lattice in the receiver i.f. strip and bask in the luxury of good transmitted

s.s.b. There will be some who say to do it the other way round, but the cost will show an increased exciter complexity. Furthermore, receiver selectivity cannot be exploited unless all stations in a net have similar passbands. Consequently, it is usually better to QSY to a clear channel, rather than be too insistent on adjacent channel QRM protection.

For those who have trouble neutralising, Fig. 8 shows a simple and usually effective method. If NC is about 5 pF, and the tube is a 6146 or similar, NCs will come out about 0.001 μ F. If NCs are made too big, NC will have to be made larger. Perfect neutralisation is not generally needed and it is convenient to make NC fixed (i.e. a gimmick) and use the nearest convenient value



Now a few words about the remainder of the exciter.

Not much signal comes out of a mixer and it has subsequently to be amplified sufficiently to shake the grid of a linear. Also, for coverage of the band, it is desirable to provide sufficient gain to be able to stagger tune all stages and still have enough gain left to use a.l.c. Now lots of gain provokes instability, for which the cures are shielding, bypassing, decoupling, neutralising and swamping. Choice of a suitable mechanical layout which avoids mutual coupling is important. You will find that the transmitters which sound the cleanest are those with the least regeneration. Distortion products increase sharply with regeneration, which is often the cause of signals which, although very good, are not crisp and "clean".

It is also as well to remember that the exciter must necessarily be operated in a strong r.f. field from its associated linear amplifier. If this field can penetrate the signal frequency or near signal frequency circuits of the exciter, you are going to have a case of r.f. feedback to cure, which might prove stubborn. Again, prevention is better than cure.

There is nothing unusual about driver stages. I find a 12BY7 and a EL84 combine nicely to drive a 1625 with gain to spare.

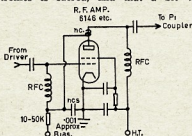
available for the NCs by-pass, which stabilises the stage.

Finally, to lay a ghost.

Some s.s.b. dogma falls in the "desirable but not essential" class. Amongst these are bias supply regulation, h.t. filter capacity and h.t. supply regulation.

While you may have greater peace of mind with a stiff bias supply and hundreds of lethal microfarads on the linear high voltage supply, the simple power supplies used for many years by VK3UO/VK2AQU for c.w. and a.m., have worked admirably on s.s.b. without alteration. The designs follow old A.R.R.L. Handbook criteria, and in some cases now have even less L and C than recommended years ago for c.w.

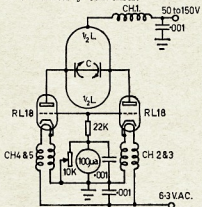
The point is that nothing in electronics is sacred, and that a bit of



Grid Dip Oscillator for 430 Mc.

Whilst building equipment for 430 Mc. a need was found for a g.d.o. to cover this frequency. To this end the following fixed coil unit was built (Fig. 1).

The heart of the unit is a butterfly tuned circuit which covers the range 340 to 500 Mc. It consists of a butterfly condenser, 30 + 30 pF., together with L, which is made of two pieces of copper strip each $2\frac{1}{2}$ x $\frac{1}{4}$ bent into a "U" and soldered one to each side of the butterfly condenser.



The whole is laid out and constructed so that the leads are very short and the valves are soldered directly into circuit.

On test a parasitic indication occurred at 440 Mc. which was traced to CH4. Re-positioning and stretching out this choke removed the parasitic.

The by-pass condensers are 0.001 μ F. feed throughs. Choke 1 to 5 each consist of 28 s.w.g. close wound 1" long, $\frac{1}{4}$ " diameter.

The circuit was found to oscillate quite readily over the range with h.t. voltage as low as 50 volts.

The butterfly circuits and valves are enclosed in a shielded box with one half of L protruding through the open end.

To calibrate, it is necessary to have access to a signal source or receiver covering the frequency range involved.

—C. B. Edmonds, VK3AEE.

honest experimenting and a give-it-a-go attitude sometimes can bring rewards at small cost. The troubles start when too many corners are cut, simultaneously, or too drastically. However, any a.m. or c.w. station can be made to radiate good s.s.b. easily, by replacing the v.f.o. with a s.s.b. exciter, and juggling the buffer and final bias.

Why not have a go? And write up your experiences for "A.R."! Every word published on s.s.b. will have the long term effect of helping someone less competent, or less dedicated, to make up his mind whether or not to try s.s.b.

As it is not difficult or expensive, every station which converts from a.m. to s.s.b. is making room for one more station on the band.

It might be your pal, your son, or even the XYL—so, move over, mate! ●

Crystal Locking "Lafayette" HE30 Receiver

W. J. BELL,* VK3WK

The following details provide for crystal locking the "Lafayette" HE30 Communications Receiver on a spot frequency, such as for W.I.C.E.N., or for monitoring of rural fire net frequencies, for which it was produced.

It includes an OB2 regulator tube which will supply regulated h.t. to both the new crystal oscillator and the variable oscillator, depending on which is in use.

Use noise limiter switch position for the "crystal-variable" switch. Either wire a.n.l. permanently into circuit or leave disconnected.

Replace a.n.l. switch with a d.p.d.t. toggle switch.

Fit a two-lug terminal strip under i.f.t. mounting bolt behind dial flywheel.

Disconnect 1K resistor (running from pins 5, 6, 7 of 6BE6 oscillator tube to three-lug terminal strip) from the terminal strip and re-connect to an insulated lug on new two-lug terminal strip.

Replace three-lug tag strip near switch with a four-lug tap strip.

Build the 6C4 crystal oscillator on a 2" x 2" x 1" chassis as illustrated and mount behind Q multiplier chassis, making use of the two Q multiplier mounting screws. Drill $\frac{1}{8}$ " hole beneath new chassis and fit $\frac{1}{8}$ " grommet.

Wire switch as illustrated (Fig. 4) and connect heater lead from crystal oscillator to pin 3 of 6BA6 r.f. tube V1. Connect lead from 47 pF. coupling capacitor from crystal oscillator to pin 1 of 6BE6 mixer V2.

* Staywood Park, Wangoom, via Warrnambool, Vic.

Connect the two B+ leads to crystal oscillator chassis as per Figs. 2 and 4.

To use: Crystal must be 455 Kc. higher than desired listening frequency. Switch set to correct band. Switch on crystal oscillator. (This will automatically disable variable oscillator.) Tune band-set for maximum noise (or for highest S meter reading if a signal is available). Antenna peaking and all other controls will function normally. ●

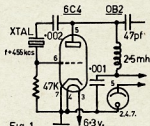


Fig. 1.

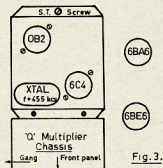


Fig. 3.

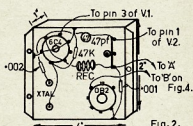


Fig. 2.

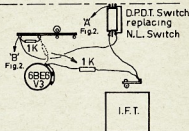


Fig. 4.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff.

Photographs will be returned if the sender's name and address is shown on the back of each photograph submitted.

Please address all articles to the EDITOR "A.R.", P.O. BOX 36, EAST MELBOURNE, C.2, VICTORIA.

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LOOKING AT PHONE SIGNALS*

THE RECEIVER AS AN ANALYSER

GEORGE GRAMMER, W1DF

• The best way to find out something about a phone signal is not to listen to it. Not listen to it, that is, as a phone transmission. Treat it as a collection of c.w. signals and you begin to hear some things that aren't always evident in "normal" reception.

ANY receiver that will bring in c.w. signals satisfactorily can be used for checking phone signals. Although the check is purely qualitative, more than that isn't to be expected from a receiver. Quantitative measurements, whether on incoming signals or your own, take a great deal of auxiliary apparatus. However, a qualitative check will go a long way toward the goal of keeping signals clean.

Furthermore, you don't have to know much about your receiver's technical characteristics in order to make a fair assessment of the quality of a phone signal. It's largely a matter of knowing how to set the controls and knowing what to look for. The "how" is easy; the "what" takes some practice—critical observation and comparison of the various kinds of signals you run across on the air. While there isn't anything complicated about it, the technique differs from that used in ordinary reception.

First, about the receiver's controls. Turn off the a.g.c. This is vital. Any variation in receiver gain while you are examining a signal makes it practically impossible to interpret what you hear. Set the audio gain well up and turn the r.f. gain down to the point where the average signal is of moderate strength. Turn on the b.f.o.

BEWARE OF OVERLOADING

Before doing any phone checking you have to find out something about the receiver's ability to handle signals. An easy way is to tune across a c.w. band. When you come to a strong signal, vary the r.f. gain control. If the audio output keeps coming up as you increase the gain, the control is operating in the right region. If the output starts to level off at some point on the gain control, the receiver is beginning to overload. There is a change in the character of the beat note at that point; the tone begins to sound a bit thin or mushy. Also, signals and noise in the background will "bounce" in intensity with the keying of the signal. These effects will readily be recognised after you have heard them a few times.

Pick out the strongest signal and set the r.f. gain well below the point where overloading starts. You should still be able to get all the output you need by increasing the audio gain.

Unless the controls are set in this way the receiver can't handle the

stronger incoming signals without overloading. Overloading has to be avoided at all costs if your observations are to be useful.

ADJUSTING THE B.F.O.

Next, set the receiver's selectivity to maximum and turn off the b.f.o.¹ Tune in a c.w. signal by adjusting the tuning control so the response to the background noise is maximum when the sender's key is down. An unmodulated steady carrier can also be used, if such a signal happens to be available.

When the gain controls are adjusted as described, the background noise increases when a signal is present, just as it does when the b.f.o. is turned on. This is opposite to what happens when the a.g.c. is used and the manual r.f. gain is at maximum; in that case the background noise decreases when a signal is tuned in.

Finally, turn on the b.f.o. and adjust it to give a beat tone of about 500 cycles on the signal so tuned in. Either side of zero beat can be used.

CHECKING A PHONE SIGNAL

At this point you're ready to take a look at a phone signal. The a.m. broadcast band is a good place to start, if your receiver happens to be one that covers it. Broadcast modulation is likely to be held under proper control, and your object is to find out what the sidebands of a properly modulated signal are like.

First, tune in a carrier, adjusting the tuning for the selected beat tone. For the moment, ignore the modulation, which will sound like a miscellaneous collection of beat tones. Concentrate on the carrier beat. Two characteristics will stand out: (1) the pitch of the tone is constant; that is, the frequency of the carrier is not in the least affected by the presence or absence of modulation, and (2) the carrier amplitude also is constant. There will be no changes in carrier amplitude that occur simultaneously with modulation. If you are tuned to a distant station and there is fading, the fading will cause variations in carrier strength, but careful listening will show that these variations are quite independent of the actual modulation.

Now tune off about a kilocycle to the side which makes the carrier beat tone rise in frequency. You'll now be in one of the two sidebands, and if the receiver selectivity is high the carrier beat either will be much weaker or will have practically disappeared. Listen carefully to the beat tones that rise

and fall with the modulation. Unless the station is in the middle of a commercial (when the rules are sometimes conveniently overlooked) the sideband beat tones will have a clean, smooth sound—a little hard to describe accurately but easily recognisable after a short listening session. Continue moving the tuning away from the carrier frequency and there will be no change in the character of these beats, except that as the tuning is moved farther from the carrier their intensity usually will decrease. These smooth-sounding beats are "legitimate" sidebands.

BANDWIDTH

If the receiver tuning dial is calibrated closely enough it is possible to get a fairly accurate idea of the transmitted bandwidth by this beat method. Concentrate on those beats which have the same tone for which you set the b.f.o. at the start. Find the frequency setting, farthest from the carrier, at which you get that tone from a sideband component. Then the difference between that dial reading and the dial reading for the carrier is equal to half the signal bandwidth—half, rather than total, because you've looked at only one of the two sidebands.

Estimating bandwidth by this method requires the ability to concentrate on the right beat tone. Obviously, it is easier to recognise the beats when the receiver has high selectivity, because then the strongest beats will always be around the right tone regardless of the tuning-dial setting.

One other thing will have been noticeable about the properly modulated signal you've been examining: the sideband components are always relatively weak-sounding compared with the carrier. This has to be so, because with voice or programme modulation the average power in one sideband is only about one-eighth the carrier power. Furthermore, this power is divided up among the various component frequencies of the sideband, so any single component will have even less power. Occasionally, if you happen to be listening to music, a single tone will stand out, but even in this case its amplitude usually will be 6 db. or more below the carrier amplitude.

ANALYSING THE PROCESS

If you aren't wholly familiar with receiver operation a diagram of this process may help. Fig. 1 is typical of the frequency-vs.-amplitude distribution that might exist in a good a.m. phone signal at some instant. Each sideband consists of a series of frequency components associated with a voice sound. These components usually have harmonic relationship, to a close degree, for any given sound; in Fig. 1 all the side frequencies shown are produced by audio tones that have harmonics of 200 cycles. More important, however, is the fact that each sideband

¹ It may not always be easy to do this, since the b.f.o. and a.g.c. cannot be controlled independently in some receivers (although it is usually practical to pull out the b.f.o. tube temporarily). Also, receivers with product detectors do not lend themselves to this method of setting the b.f.o. frequency since the detector does not (or should not) function when the b.f.o. is not operating. In such cases the b.f.o. has to be set to give approximately the desired tone on background noise. This is good enough if the selectivity is high.



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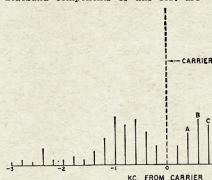


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consists of a group of **distinct** frequencies. It is not just a continuous mess. Each separate frequency gives a separate, and reasonably stable, beat tone with the receiver's b.f.o.

If the receiver can handle a group of these frequencies without doing injustice to any of them—i.e. without overloading—the individual beat components will stand out just as any one of a similar group of closely spaced c.w. signals will retain its individuality. Sideband components of this sort are



generated in a properly modulated transmitter, and sound "clean" with the receiver's b.f.o. on.

By using as much selectivity as the receiver offers, the number of sideband components heard at any one time is narrowed down. In Fig. 2 a curve typical of "500 cycle" selectivity is shown superimposed on the lettered group of sideband components from Fig. 1. The response range shown is 60 db. If the receiver is tuned to the frequency of side component D, the response to that component will be as shown by the vertical line. This response is relative to the carrier-only response; the scale here differs from that of Fig. 1 because the former was plotted to an intensity (voltage or current) scale while Fig. 2 is in decibels. The sideband components labelled B, C, E and F would have the decibel response shown, as a result of the effect of the selectivity on their original amplitudes. Note that A and G are so far down (more than -60 db.) that they do not even show on the graph. This is also true of all components higher in frequency than G and lower in frequency than A, including the carrier.

If the receiver's b.f.o. is offset from the selectivity curve by 500 cycles from the method (this was the object of the method of setting the b.f.o. frequency detailed earlier) each sideband component will give a beat tone as shown in the upper scale. The selectivity restricts these tones to a relatively narrow range centering around 500 cycles. This also will be true when the receiver is tuned to other parts of the signal. When this point is appreciated the beat tone method of checking bandwidth becomes clear.

Practically speaking, any sharply peaked selectivity curve—such as the kind a Q multiplier or the old-type crystal fixed gives—is best for this type of checking. While your mind can be trained to exclude those tones which differ appreciably from the one for which you originally set the b.f.o., it

is easier with a highly peaked selectivity curve because then only a frequency component right on the peak—that is, one that gives the selected beat tone—really stands out.

SPLATTER

Splatter frequencies arising from overmodulation tend to have a different character than legitimate sidebands. There is a harshness associated with them that again is hard to describe but not hard to recognise. Listen for this

★

Fig. 1.—A properly modulated a.m. signal may have, instantaneously, side frequencies distributed something like the pattern in this drawing. The frequency pattern from instant to instant with voice modulation.

★

sort of thing during commercials, particularly, and with the tuning set toward the edge of the band you found to be occupied during normal program transmissions.

The harshness associated with splatter is the result of a different type of sideband-frequency distribution. The onset of splatter is usually abrupt, giving an effect something like key clicks. Also, the side frequencies it generates are often much more closely spaced than the sideband components of proper voice modulation, so that distinct tones are less easily recognisable.

CHECKING AMATEUR SIGNALS

An hour or so spent in listening this way will give a much better idea of what a phone transmitter is really doing than months of listening to what actually is being said. Furthermore, what is learned is as useful in appraising an s.s.b. signal as it is for judging a.m.

Really horrible examples of overmodulation may have been missing in this preliminary training of listening to a well-modulated broadcast station. They are much less rare in the communication services—including said to say, Amateur. However, it is well to start off by learning what a **good** signal is like. If yours is a Ham-bands-only receiver, you will have to identify the right kind through pre-knowledge of how it should sound. The difference between good and bad is clear enough, after you've heard both kinds.

With this background in checking modulation you're in a position to take a look at Amateur signals and find out a few things about them. However, before condemning any signal you hear as not being up to par, ask yourself two questions: First, is there any possibility that the receiver is being over-loaded, either by the signal in question or by one that may be far enough removed in frequency so that you aren't aware of its presence? That r.f. gain control setting is important. Second,

if there are harsh "burps" indicating splatter from overmodulation or s.s.b. flattening, do they belong to the signal you're blaming? In a crowded band identification of bits and pieces of splatter is sometimes pretty difficult.

In other words, make sure that the signal being checked is the one you're actually hearing, and that no spurious receiver effects are being introduced. An overloaded receiver is worthless as a checking device. Most receivers have so much gain that even a weak signal can be amplified up to the overload point unless care is used in holding down the amplification. The lower you can run your r.f.-i.f. gain, the better.

A.M. PHONE

With these precautions well in mind, you'll have no difficulty in spotting overmodulation on a.m. signals. "Overmodulation" here means any nonlinearity that results in splatter outside the proper channel. Very often it isn't overmodulation in the commonly accepted sense of the word, but is "spurious" generated by attempting to make a modulator do more than it is capable of doing. The actual modulation percentage may be well below 100. The effect is much the same in either case.

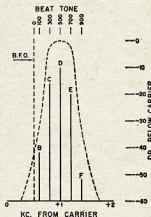


Fig. 2.—With high selectivity, only those sideband frequency components to which the receiver is actually tuned will give appreciable response. This drawing shows the relative response a selective receiver would give on the lettered components in Fig. 1. The scale at the top shows the beat tone each component would produce when the b.f.o. is offset 500 cycles from the peak of the selectivity curve. In this case only C, D and E would result in appreciable audio output.

You can find out still more by this method. Tune in the carrier and listen to the beat carefully while the transmitter is being modulated. A good many v.f.o.'s can't "take it" when a succeeding stage is modulated. A change in the carrier beat frequency during modulation shows this up; it is most easily detected if the beat tone is made as low as possible. The change is often at a syllabic rate, giving an effect something like frequency-shift keying; the principal cause of this is a change in power supply voltage when the modulation throws on an extra load.

If the v.f.o. frequency is modulated at an audio rate, the carrier will take on a mushy character during modulation. Audio f.m. leads to some undesir-

able effects; the combination of f.m. and a.m. causes distortion, increases bandwidth, and makes the sidebands unsymmetrical. If you run across such a signal, change to normal phone bandwidth, and with the gain controls still the same and the b.f.o. still on, try to tune the receiver to zero beat with the carrier. If there is appreciable audio f.m. it won't be possible to make the voice sound right. The same test on a stable signal will give no special difficulty, although it may not be possible to hold the exact zero-beat adjustment for any length of time because of minute frequency drifts in the transmitter's or receiver's oscillators.

The beat-note checking method also will show up changes in the carrier amplitude. As there are many controlled-carrier a.m. phone signals, an increase in carrier amplitude while modulating is often to be expected. However, if the carrier amplitude decreases, something is wrong with that signal. It may be poor power supply regulation, but is just as likely to be something that results in the generation of spurious modulation components. A check of the sidebands will show which.

S.S.B.

Examined in this way, s.s.b. signals differ from a.m. only in the absence of the carrier and one sideband. Properly generated and amplified, the sideband components will have the same clean sound to them that properly modulated a.m. sidebands do. Overdriving a linear amplifier will result in "burps", especially noticeable outside the desired sideband channel and particularly in the

undesired sideband region, just as a.m. overmodulation does.

Since there is supposed to be no carrier with s.s.b., the receiver's b.f.o. must be set up on a c.w. signal or unmodulated carrier as described earlier. This is obviously not the same setting that would be optimum for s.s.b. reception; the b.f.o. frequency is offset by 500 cycles or so from the s.s.b. setting. With this offset, you can easily determine whether any carrier is being transmitted; a continuous carrier will give a steady tone, usually weak compared with the sidebands, but nevertheless present. You can also detect a carrier that rises with modulation. It is "keyed" along with the voice, sounding something like slow c.w. with a very soft make and break. This is caused by incomplete carrier balance, which may be a dynamic effect—that is, the carrier may be quite well balanced out when there is no modulation, but becomes unbalanced when it is being driven by audio.

With high selectivity it is possible to check the bandwidth of an s.s.b. signal by the beat method, and particularly to see whether there is appreciable output in the undesired sideband region. As shown by Fig. 2, the beat tone that your b.f.o. is adjusted for will predominate only when a sideband component is on the frequency to which the receiver is set. If your mind is trained to exclude any other tones you may hear, you may be sure that you aren't being deceived by instrument errors. The selectivity has to be high enough so that the audio image of the

b.f.o. tone is negligible; in other words, you have to have true single-signal c.w. reception.

TRANSMITTER CHECKING

Of course, all this is only preliminary to the real object—checking your own transmitter. Practice on incoming signals of all types will give you the insight needed for analysing your own signal. Having found out how to spot defects in others, you're well prepared to find out what, if anything, is wrong with your own.

Some suggested setups for checking your own transmitter will be discussed in a subsequent article. In the meantime, give a try at being your own sideband analyst. The only equipment you need is a receiver.



MODIFICATION OF THE 522 FOR F.M. OPERATION

(Continued from Page 5)

Limiter saturates not recorded
Limiting constant over 10 μ V. approx.
Muting opens at 5 μ V.
Noise quieting 18 db. at 5 μ V.
A.M. rejection at 5 μ V. 6 db. approx.
A.M. rejection at 10 μ V. improved

It will be noted that some of the tests were done on one receiver and not on the other. This was due to the two sets being tested at different times and not having the previous test sheet at the time of the second test, consequently some were missed and, unfortunately have not been retested to date.

FINAL COMMENTS

Three channels were mentioned in connection with the receiver crystals. These have also been published in "A.R." (July 1963, p. 7) and I would like to endorse the acceptance of these channels as standard throughout Australia, mainly because "F.M. Mobiles" are going to be much more common when there is more of this equipment released from commercial service during the next few years.

These chaps are going to be moving intrastate and interstate, and what could be more enjoyable, or useful in an emergency, than to have the privilege of "break in" wherever you may be on these frequencies. Likewise, what could be more frustrating than to know that there is a net operating and not be able to "break in" for the sake of acceptance at this early stage of standard Australia-wide frequencies.

This article could not be published but for the assistance given by members of the VK3 f.m. gang and I would like to acknowledge the help given by John Spicer, VK3ZEL, who has spent much time checking and advising from time to time with air tests, some he doesn't know of since they were done on the receiver while he was operating, and also to Jim Stewart, VK3ZFS, Jack Leitch, and George Crisp, VK3ZJQ, for their interest and practical help during the period of modifying the perennial "Surplus 522" gear.

So here's hoping that you will put that 522 to good use, and get a lot of pleasure from operating on the "Friendly F.M. Net".

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SINGLE SIDEBAND ON 432 Mc.

SOME thought was given to the problem of obtaining single sideband on 432 Mc. It would seem that practical equipment falls into one of two broad categories:

Low level mixing has much to recommend it, but leaves a problem of power amplification at the operating frequency. This may require three or even four stages of linear amplification.

With an existing 14 Mc. s.s.b. exciter on hand, it was therefore decided to use power mixing and the following article describes equipment for heterodyning the output of this exciter to 432 Mc.

The value of the 832 grid swamping resistors was chosen to suit the drive available at 14 Mc., which was fed to the grids in push-pull.

The oscillator is in a shielded compartment, the wall of which fits snugly across the 6CL6 valve socket. The earthed pins of this socket are soldered directly to the shield. Under these conditions the 6CL6 is perfectly stable, no doubt this is helped by the low impedance across the grid.

125 Mc. is capacitively coupled to the grids of V7, a QQE03/20 push-pull tripler. The anode circuit of V7 is a quarter wave resonant line on 375.3 Mc. which is tuned by means of a sliding shorting bar.

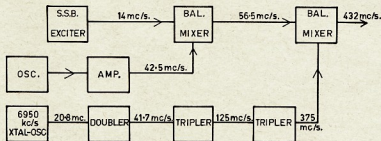
375.3 Mc. is then fed in parallel to both grids of V8 (QZE06/40) balanced mixer by L12. L12 consists of a loop coupled to L11 and a length of open wire transmission line. This length of transmission line is chosen so that L12 is in quarter wave resonance. This further attenuates any undesired frequencies which may be present at that point.

Several methods of coupling this frequency to the QQE06/40 were tried, but best results were obtained by the method set out in this article and accompanying drawings.

Feeding the signal to the cathode of the 06/40 resulted in overall instability and it was found essential that the 06/40 cathode be directly earthed. 56 Mc. is fed to the grids of the 06/40 in push-pull and the value of the swamping resistor was chosen to suit the drive available. Optimum output was found to occur when the grids were driven so as to just reach grid current, i.e. 0.1 mA. Any drive in excess of 0.1 mA. caused a decrease in output.

The anode circuit tuned to 432 Mc. consists of a quarter wave line tuned by a preset shorting bar. It was hoped to use a butterfly circuit in this position, but the internal length of the valve anode leads proved to be too long and multiple resonance occurred. The output is taken via L16, a balanced output link (Balun) was tried at this position but no perceptible difference was noted. With 40 watts d.c. input, this mixer gives 4 watts output on 432 Mc.

The only spurious signal which could be detected in the output was a small amount of 375 Mc. Much effort was made to eliminate this component, without success, it was found to be due to direct feed through the inter-electrode and in-built neutralising capacitors. In



Balanced mixers are used as this circuit will cancel the most troublesome source of spurious signals, i.e. the heterodyning frequency.

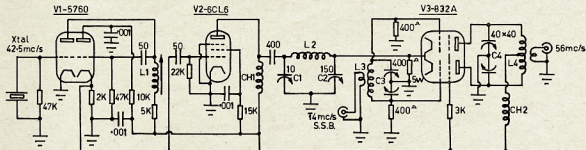
Mixing 14 Mc. to 432 Mc. in one stage would give heterodyning frequency only 14 Mc. removed from 432 Mc. and an image only 28 Mc. away. For this reason heterodyning is achieved in two steps.

After much thought it was decided to use 56 Mc. as the first step of heterodyning. Some country stations may have to use a different frequency, depending on the local t.v. situation.

* 12 Acacia St., Glenroy, Vic.

No spurious signals or instability is apparent due to the harmonic relationship between the input, output and heterodyning frequency. (This might not be the situation if the 832 were driven into grid current.)

The second unit heterodynes 56 Mc. to 432 Mc. and is built on a copper chassis. The first stage is a 5760 squier overtone oscillator and cathode follower, with output at 20.85 Mc. This is capacitively coupled to the grid of a 6CL6 doubler, the anode of which is resonated to 42 Mc. by L6 and the stray capacities. L7 is a two-turn link closely coupled to the cold end of L6. This



250.v. \odot 100 ma.

NATIONAL FIELD DAY CONTEST RESULTS, 1963

As indicated by the number of logs submitted this year, popularity of this Contest does not appear to have increased over that of last year. However, the rate of scoring shows a remarkable increase over that of last year, and some really excellent individual scoring was achieved, notably that of VK6WC and VK7JF.

High scoring was no exception to the multiple-operator portable stations as they, too, submitted very high scoring logs. Noteworthy of these were VK3APC, VK5LZ and VK6VF who all scored over 2,000 points.

The standard of the logs submitted was of a fairly high order, but in particular the log of VK3APC deserves recommendation as regards its neatness.

Judging from the descriptions of equipment included on logs, there exists some really fine portable equipment, and to describe it all would require more space than can be allotted here.

As a final remark, mention is made of VK3CS/P's operating point. In their own words, "The locale is inhospitable in the extreme. A bare rock and gravel volcanic outcrop, some 300 feet above the surrounding plain, dotted with a few tufts of hardy scrub grass and dominated by a blackened tree, dead for decades. The road up to the summit is a boulder-strewn path cut up the side of the hill for who knows what purpose. Towards the top, the track is hard to see and it is easy to drive into a position which can only be backed out of. The ground will not successfully take pegs, and to ensure trouble-free operating in high winds, linoxins are let into the rocks for guy anchors, and left permanently."

That could almost be described as N.F.D. the hard way.

In conclusion, we would like to thank all who participated and submitted logs, and at the same time congratulate the award winners.

—Federal Contest Committee, W.I.A.

AWARD WINNERS

Section A (Portable Phone):

VK2AAH—H. F. Burloft	749	pts.
VK3WK—W. J. Bell	806	"
VK4OL—A. J. Hansen	448	"
VK5WC—F/O. E. Sundstrup	1124	"
VK6MM—M. J. McDonald	148	"
VK7JF—J. E. Forster	1109	"

Section B (Portable C.W.):

VK2YB—W. J. Lewis	204	pts.
VK3AFQ—H. L. Hepburn	77	"
VK4OL—A. J. Hansen	124	"
VK6MM—M. J. McDonald	35	"
VK7CH—C. Harrison	269	"

Section C (Portable, Multi-Op.):

VK2APQ—P. J. Healy	1308	pts.
VK3APC—Moorabbin & District Radio Club	2603	"
VK5LZ—Elizabeth Amateur Radio Club	2398	"
VK6VF—V.h.f. Group of W. Australia	2189	"

Section D (Fixed Stations):

VK2APK—D. Kiesewetter	770	pts.
VK3ASZ—S.W. Zone, W.I.A., Victoria	765	"
VK4UK—C. P. Singleton	260	"
VK5RR—R. G. Harris	275	"
VK5WU—R. G. Jaeschke	120	"
VK7SM—S. G. Moore	670	"

Section E (Receiving):

WIA-L2023—D. W. Shephard	585	pts.
WIA-L3042—E. W. Trebilcock	835	"
WIA-L2233/VK4—R. L. Edwin	275	"
WIA-L5041—D. J. Coggins	765	"
WIA-L6021—P. W. Drew	640	"
WIA-L7025—B. Kelly	550	"

Section C (Portable, Multi-Op.):

VK2APQ	1308	VK3CS	1136
VK3APC	2603	VK5LZ	2398
3RN	1923	VK6VF	2189
3WI	1159	6AS	203

Section D (Fixed Stations):

VK2APK	770	3ALD	50
2ZC	110	3KS	25
2EY	65	VK4UK	260
VK3ASZ	765	VK5RR	275
3AIT	550	5LL	220
3EF	515	5TM	115
3XB	470	5CL	70
3AZM	345	5TN	65
3LW	320	5PE	60
3AHG	265	5WI	60
3AHA	235	VK6WU	120
3QV	180	VK7SM	670
3PP	110	VK8UX	15

Check Logs—

VK1SG	VK5TL
VK4GH	VK7CH

Section E (Receiving):

WIA-L2023—D. W. Shephard	585	pts.
WIA-L3042—E. W. Trebilcock	835	"
WIA-L3099—J. Jobson	700	"
WIA-L3064—R. F. Loutit	490	"
WIA-L3127—R. F. Gething	405	"
SWL-VK3—P. J. Gibson	375	"
WIA-L3126—B. Theodore	335	"
SWL-VK3—D. C. Diamond	315	"
WIA-L2233/VK4—R. Erwin	275	"
WIA-L4028—T. A. Lane	240	"
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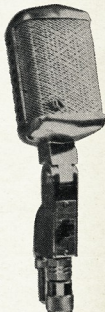
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NOW THEY'RE ALL FOR RADIO*

JAMBOREE-ON-THE-AIR STARTED IT!

By L. D. MARMO,† G.S.M. 8th Footscray

It all began in 1960. I was shopping in Footscray the week after the Group had taken part in the Jamboree-on-the-Air, for the first time, when a diminutive Cub stopped me, and said enthusiastically, "Oh boy, Skip, we had beaut. fun last Saturday! Wouldn't it be great if we could have the Jamboree-on-the-Air all the time?"

Why not, I reflected. And so the idea of the 8th Footscray Boy Scouts' Amateur Radio Club was born . . . suggested by a small boy.

We then gathered information, and started to correspond with the Ashgrove, Queensland, Boy Scout Group, who had begun the first Scout Radio Club in Australia in 1961.

It was not until September 1962 that we considered that we had sufficient data to make an approach to the proper authorities. However, the difficulty of obtaining skilled technical assistance, and the provision of suitable equipment, caused us to delay until early 1963.

★
Opening of 8th Footscray Boy Scouts' Amateur Radio Club at Maidstone on June 4, 1963. L. to R.: John Marmo, Gavin Hare, Dennis Price, Maxwell Manning and Les Marmo (seated).



★
In the meantime, the Wireless Institute of Australia had proposed a scheme to develop in youth an interest in Radio and Electronics. To provide incentives, and to give recognition to members, they proposed to introduce a system of Radio Proficiency Certificates on a graded basis.

This was the answer to many of our problems. Here we had offered to us a ready-made interesting programme of activity, which recognised skill and achievement. An approach was made to the Institute and we became Youth Radio Club No. 0002 on their register.

P.M.G. PERMITS

An application to the Radio Branch of the Postmaster-General's Department for a licence to transmit on the short wave accompanied by the licence fee of £1 and a letter assuring the P.M.G. that their regulations in relation to the

operation of Amateur Stations would be rigidly observed, brought forth official permission and the issue of call sign VK3AEF for the Group.

Having been granted a licence, and admitted to membership of the Wireless Institute Youth Radio Scheme, the Club has begun regular meetings in the Scout Hall on Tuesday nights and Saturday afternoons.

A programme which includes radio construction, electrical and radio theory classes, shortwave listening, and station operation (in which the Scouts hope to make local, interstate and overseas contacts) is now operating.

ACHIEVEMENT

You may ask, what has the formation of this Club achieved?

Firstly, it is hoped that Scouts and Senior Scouts will develop an interest in Radio and Electronics which can be pursued as a vocation, or a hobby through life.

Secondly, by keeping alive the spirit of fraternity, fun and fellowship, which was so evident in the Jamborees-on-the-Air, the Group will be carrying out in a practical way, the provisions of the 4th Scout Law.

In Queensland, the Ashgrove Boy Scout Group and Oakleigh Group both have Radio Clubs and operate their own Club Stations. Ashgrove is VK4AH and Oakleigh is VK4OS. In Tasmania, VK7BS is operated by members of the 13th Hobart Group, and in N.S.W. 1st Auburn Senior Scouts have formed a club and Broken Hill Scouts will be on the air before long.

In the West, 1st Kalamunda Group has just begun.

It is easy to visualise a chain of Scout Radio Clubs throughout Australia and even throughout the world, all regularly in contact with one another, forming friendships among their numbers and broadening their outlook and understanding of the Scout Law.

Other Man's Station

FRANK BENTLEY, VK5MZ

Frank received his licence on 22nd October, 1931, and joined the celebrated "M" gang with the call sign of VK5MK, which he held until World War II, when naturally Amateur Radio ceased for the duration.

The end of the war found him not very interested in coming back on the air, but was finally talked into resuming his hobby by Reg VK3MZ, this time with the new call sign of VK5MZ, and using a Type 3 Mark II, which he used continuously until early in 1962 when he ascended the natives by coming up with a Gelsco to an 807, modulated by a pair of 807s.



Frank has worked most countries available on c.w., and in 1954 started the regular telephony schedule with Reg VK3MZ and the late Jim VK3LM, which with Carl VK5SS joining in 1955, has been on 7 Mc. at 6 p.m., Adelaide time, without fail ever since.

For many years an executive in the S.A. Combined Church Calisthenics and Dancing Interstate Team, he visited Ballarat each year for the competitions, making firm friends among the local Amateurs in that city.

Still as keen as ever, Frank is typical of the non-technical enthusiast who chose Amateur Radio as his hobby in what is known, rightly or wrongly, as "The good old days" and has never regretted his choice.

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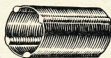
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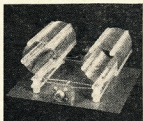
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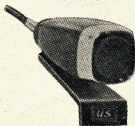


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S.W.L.

Greetings fellow listeners. This month I would like to say a few words about what some people refer to as "Donald Duck" talk, i.e. single sideband. The whole nature of s.s.b. is one to conserve the radio frequency spectrum used by the Amateurs, so that there can be more channels of communication for a given number of kilocycles. As most of us know, there is an ever increasing demand for more channels for communication. Single sideband allows more voice QSO's per band than any other mode of transmission. The use of s.s.b. has shown that a two to one reduction of bandwidth is entirely possible as compared to amplitude modulation.

S.s.b. has a distinct advantage over a.m. as regards selective fading. An a.m. signal is subject to distortion because of fading. The s.s.b. signal rises up so few kilocycles that it is not subject to selective fading. Selective fading should not be confused with the normal fading on any sky wave signal.

The days of a.m. are by no means over, as not everyone can afford to start up on s.s.b., but it is interesting to note that at a recent v.h.f. display in W. land, that all the rigs on display were s.s.b. rigs. By the way, an s.s.b. signal has a gain of 9 db. over an a.m. station.

Well so much for my monthly chat. Now let's look at the local scene and see what you have all been doing of late.

VICTORIA

Roger L3158 and his friend motored up near Kinglake for the R.D. Contest and set up camp, but they had their share of troubles as their battery went flat on them during Saturday night, and as a result they were forced off the air for many hours. However they had a good time which was the main thing. By the way, you v.h.f. boys, Roger may be able to help you out with your beam troubles.

Our popular President Maurice has been as busy as ever, but has been having converter troubles. However, Bob Young is looking into the matter. Thinking of Bob, he is another of our members who have been too busy to devote much time to Ham Radio.

Thirty-six people were at our Sept. meeting, which I am sure must be an all time record. In fact one had to fight a way through the crowd to get a seat. We had as our guests, members of the 5th District Footscray Boy Scouts, with Bill SAHT, who is one of the big chiefs. Our guest speaker for the evening was Eric Trebilcock, WIA-L3043, who spoke to us on S.W.I. and of his experiences. Eric has been active since 1926 and his discourse on the importance of sending out correct reports was very interesting for all of us and I am sure that we all learned a great deal from his talk. Eric went on to say that in his opinion, it took about five years to become proficient at S.W.I.ing. He also showed us a number of QSLs and awards that he had won over the years. Many thanks Eric for a really first class evening.

Before our President introduced our guest speaker, several important matters came up and I will touch on them briefly. Council have permitted us to erect an aerial for the AR7 which belongs to the Group. In future we will be able to borrow books from the Group on the nights. We also have permission to produce a newsletter. However, there are several important issues to be gone into on that score.

Great LZ318 is now active on 50 Mc. with a new converter and a 2 el. quad is almost ready.

Neil Duncan is swatting very hard at the moment for the January exam. for the ticket. Best of luck for the ticket, Neil. Noel L3101 has been a little more active recently and has been hearing a little DX on 14 Mc. Several months ago Barry Ball, who is a VK101, was in the Y.R.C. Group, paid Noel a visit and Noel took him into one of our meetings. Very pleased that you made the meeting, Barry, but very sorry that I was not there to meet you. Noel L3093 hopes to have his ticket before the end of the year. Best of luck to you Craig.

NEW SOUTH WALES

Conditions have not been good in this neck of the woods so far as the Ham bands are concerned. Ross L2222 reports hearing XE2 and OA5 on 7 Mc. Ross is with the No. 1

Wireless Regiment at Cabarlah in Queensland. Don L2022 writes that owing to other commitments he has been out of a.w.l. activities for some time. However he manages to make some hours during the R.D. Contest. Your scribe, L2211, managed some listening in the R.D. Contest. Thought for the month: Safety starts between the ears, keep applying it through the years. T3, Chas. L2211.

Late news: Don L2022 had the misfortune to burn out a transformer in his rx just before the VK-ZL Contest. Bad luck, Don.

WESTERN AUSTRALIA

Our stalwart from VK6 land has really had a feast with the DX over the past month. In fact Peter says that he thinks that the past month would have been one of his best efforts yet, and looking at the most excellent log that he sent over, it would certainly seem like it. Despite rx troubles just before the R.D. Contest, Peter managed to get going for the event and ran up a very fine score.

Peter managed to get his pre-amp going just before the R.D., then at the last moment it failed altogether. Yes, that sort of thing often seems to happen to most of us at times. Hope that you soon find the trouble, Peter.

Thanks for a mighty interesting letter, Peter, and by golly, that DX log of yours certainly makes our mouths water, that's for sure. T3, Mac Hilliard.

YOUTH RADIO CLUBS

We seem to be a live issue, judging by recent correspondence. This is it should be the whole Amateur fraternity should debate the Youth Radio Scheme. Those who debate the issue should have certain information at hand, otherwise their debate could be merely an insincere justification of a desire to have the present frequencies exclusively for the use of themselves and a few friends. For the debate, find the answers to these questions. Has the average age of Amateurs been rising? Has our percentage rate of increase approached that of most well-developed countries? Is it not the stated official attitude that only large numbers will justify retaining frequencies? Where can you find the large number of new Amateurs?

The VK2 Y.R.C. Scheme continues on the move with new clubs and new ideas. In regard to clubs, the latest figures I have to hand show 22 clubs in N.S.W., 20 in Victoria, 14 in Tasmania, 7 in Queensland, and 1 in Port Pirie. My apologies to any others—I have heard of some indirectly. Can you make it definite? I would like to hear from you.

In regard to ideas, there are the Radio-Telephony Operator's Certificate and Radio-Telegraphy Operator's Certificate, encourage club members to make contact from a club station and learn correct procedure. Details can be had from 2YA. Prizes are also offered (from cash donations) for (a) sets of training charts to help club activity, (b) first to gain Intermediate, Radio-Telephony and Radio-Telegraphy Certificates, and (c) best set of constructional projects for Intermediate Certificate.

Club leaders will find the weekly publication "Understanding Science" has had some useful articles on elementary electricity and radio. The coloured illustrations would make good training charts. It may not be easy to get back copies but Municipal Libraries may help. Articles are issues 1, 2, 3, 16, 20, 21, 23, 24, 25, 26, 27, 39, 40.

With the co-operation of officials concerned, Roger Davis went on the air as VK101 on his 16th birthday. He has c.w. and a.m. on 80 and 40 at present and would appreciate a call.

Rex Black (2YA) is considering making a tape with colour slides on Y.R.C. Can you supply transparencies of interesting activities in your club? If so, get in touch with Rex—cost refunded, by the way.

"Y.R.C. was officially blessed in the N.S.W. 'Education Gazette' this month. Can you arrange that (with photos, etc.) in your own State? T3, VK1KM.

DX LADDER

	Countries	Zns.	S.s.b.	W	
	Conf.	Hrd.	Conf.	Hrd.	Stat
E. Trebilcock	281	289	40	—	50
D. Bentley	118	265	38	20	168
A. Westcott	93	159	31	9	167
M. Hilliard	82	231	33	31	161
M. Cox	79	226	30	46	158
P. Drew	71	209	28	39	158
C. Abernethy	56	96	30	—	—
N. Harrison	49	129	30	5	27
L. Thomas	41	139	20	16	97
G. Earl	22	116	15	9	92
D. Goggins	10	82	7	3	60

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Correspondence

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YOUTH RADIO SCHEME

Editor "A.R." Dear Sir,

As the originator of the Youth Radio Scheme I should be grateful if you could afford me the opportunity to reply to the opinions expressed by Al Rechner, VK2ZCR, in September issue.

First, it is pleasing to find that someone is sufficiently interested and concerned about young people to question the wisdom of diverting their attention from education by instituting a Radio Club system in secondary schools. It is gratifying, also, to note that your correspondent is sufficiently open-minded to request that someone should attempt to allay his fears.

If we examine Al's letter, it is obvious that he has made a strong point in stressing the need to improve educational standards so that young people can cope with the rapid changes in our modern society. As a teacher of over thirty years' experience I deplore the encroachment of tawdry, trivial and often degrading media which beset the younger generation to-

day and drastically undermine the efforts of those who seek to improve cultural and educational standards. As a result of experience in organising hobby clubs in secondary school I feel that the development of such interests and activities can have a stabilising influence on young people and can fill the vacuum that would otherwise be occupied by less desirable occupations. A learner with a supervised and progressive hobby is far less likely to engage in delinquent behaviour. I can quote many cases of lads whose behaviour and attitudes have changed materially after they joined a school hobby club.

Al admits that certain headmasters admit some improvement in the academic performances of Radio Club members, but decries this authoritative opinion on the grounds that Amateurs have been in a better position to judge by observations over a period of years. It seems to me that there is some confusion and invalidity of argument on this point. I feel that the opinions of headmasters and teachers in schools where Radio Clubs have been established are certainly worthy of more consideration than your correspondent is prepared to admit. Also, as the Youth Radio Scheme has been operating for only a short time, it is not possible for any conclusions made by observation of quite different situations must be invalid when offered as arguments against the Youth Radio Scheme of this Institute. I am quite willing to concede that over-enthusiasm in any direction can have adverse effects on educational progress at any level. However, the fault lies not with the activity itself but with the parents of the young people so affected. There must be many youths whose excessive participation in Boy Scout work has proved detrimental to their scholastic progress. However, one does not condemn the Boy Scout movement because of the failure of parents to guide their sons wisely. I think we can quite reasonably claim the same consideration for our Youth Radio Scheme.

Far from being rival and a detriment to school education, the Youth Radio Scheme is designed to support and supplement the normal secondary courses. Perusal of the syllabuses will show that our Certificate requirements include passes in Mathematics and Science and there have been many instances reported by Club Leaders of Club members "pulling up" their academic socks in order to meet our Certificate specifications. Examination of secondary Science courses will reveal considerable overlap in topics in electricity and magnetism and Keith Howard's recent article in "Radio, Television and Hobbies" shows clearly the close relationship that exists between his Radio Club activity and the formal courses of the Science Department.

Last year one of my Club members attempted the Departmental Intermediate Certificate examination and was absolutely delighted when he discussed the Science paper, which contained questions in Electricity and Magnetism closely resembling those which he had been required to answer in the Elementary Radio Certificate written examination.

I might stress, also, that of the six members of the Youth Radio Scheme Committee in New South Wales, four are Education Department

teachers and the great majority of Club Leaders belongs to this profession. Also, both New South Wales and Victorian Education Departments have given their approval to the formation of Youth Radio Clubs in Departmental Schools, and, I can assure you, this permission would not be given without careful assessment of the value of such a move.

One of the important functions of our Youth Radio Clubs is to provide vocational guidance towards careers in Radio, Television and Electronics. With interested teachers as Club Leaders it is apparent that really interested boys can be directed into occupations where they will be round pegs in round holes and will enter those vocations with interests already established. It is obvious, too, that teachers in charge of High School Radio Clubs will encourage members to attain the academic standards required for the various occupations into which the boys will proceed and will restrain those whose excessive zeal in Radio may tend to undermine their school studies unduly. The close supervision inherent in school Radio Clubs is a major feature in favour of the Youth Radio Scheme, as it obviates situations, such as those observed by Mr. Rechner over a period of years, where youthful enthusiasts in hobby Radio to the stage where their studies suffer.

I should like to quote from an address presented to the Institution of Radio Engineers by Mr. S. O. Jones, Managing Director of S.T.C.: "Today radio and electronics are expanding at a rate which amazes even the most blase amongst us. It is opening up new horizons for mankind and there is now hardly an aspect of our daily lives which is not, in some way, influenced by the techniques and applications of this young branch of science. If the Youth Radio Scheme can help to make young people aware of these exciting developments and can direct the more able of its Radio Club members into these developing fields, I feel that our voluntary effort will have been worthwhile. If the leaders of the Soviet Union can appreciate and foster by governmental agencies the great potential talent in Radio and Electronics that exists among its junior citizens, surely our Australian young people are entitled to whatever help and encouragement we can give them in this direction."

As members of the Wireless Institute we cannot afford to ignore the advantages to be gained by fostering the Youth Radio Scheme. Already there has been a movement from the Youth Radio Scheme into the ranks of Associate and Full Members and, as time passes, this trickle could become a torrent. One of the stated aims of the Youth Radio Scheme is "to increase the membership of the Wireless Institute of Australia by encouraging Youth Radio Club members to continue their association with the Institute by becoming financial members. No organisation can hope to expand without an influx of new members and only the most unthinking W.I.A. members will be content to enslave our organisation as a static body."

—R. C. Black (VK2YA), Supervisor, Youth Radio Scheme, N.S.W. Div., Federal Co-ordinator, Youth Radio Scheme.

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Sub Editor: LEN POYNTER, VK3ZGP.

14 Esther Court, Fawkner, N.15, Victoria

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

H F

From LZL comes news of an effort to work into VK from Don ZLIAQW, who was recently in Melbourne and discussed the matter with Don's wife. The N.Z.A.R.T. hopes to erect a high power phone station on Mt. Pirongia (3,925 ft.). Antennae will be stacked 10E, yavai and Nuyvator front-end converter into a Collins VS4. A frequency close to the band edge is visualised and it is hoped to have some special characteristic on the carrier for positive identification. However, when further details are known publicity will be given through "A.R." and if possible all Divisions will be notified.

There is also news that ZL4 might be represented on 6 mx this year—A v.h.f. group has been formed in Dunedin and more activity is promised. ZL4RL will be running a.s.b. on 2 mx with a 6/40 linear to a 6 over 6 skeleton slot. Apparently there is other 2 mx a.s.b. activity in ZL.

Readers of this page would be interested in any special activity contemplated during the forthcoming season. So if you have heard anything please let me know and I will publicise their efforts.

With the use of ex-commercial gear of the mobile variety each State will keep in mind the use of \$3.00 Mc. here in VK3 as a 6 mx a.m. net frequency and where possible continue to use same. The net is growing slowly and will move quite rapidly in the next few months as more crystals become available. If you're visiting Melbourne with these mobile units remember this frequency.

A small item I came across recently was that a line of chokes similar to the Ohmrite series in the U.S. are available here in VK. They are known as Insulated Chokes Types CLA and CL-I made by I.R.C. Types CLA are available in a range from 0.22 microhenries, approx. self resonant freq. 440 Mc. with a range of 1,250 m.m.A. to 7.5 microhenries, 76 Mc. at 275 m.A.

Type CL-I comes standard at 0.47 m.H., 330 Mc. at 1,850 m.A., to 24 m.H., 46 Mc. at 175 m.A. The inch diameter CL-I has a 1/4 inch long. Suggested circuit applications are such as filament choke, plate loads, series and shunt peaking inductors, wave traps, bypass capacitors, line terminating impedances, cathode chokes, antenna chokes and grid chokes. Price is around \$10.00. A data bulletin is available through I.R.C.

Many thanks to Allyn 6ZDM for his efforts in the past for VK3. Welcome to the new writer, Graham 5ZDB. Scrives are requested to forward their notes to me no later than 2nd of the month. (Correspondence earlier for the January issue.—Ed.) 73, ZZGP.

NEW SOUTH WALES

We received some news from Mac 2ZMO, who received it a little late for inclusion in the last notes, so here it is. "The big thing up this way was the break through to Sydney on 20th and 21st August, the world was in a state of confusion. The 21st was a day when we finished the contact. Some of the others heard were 2ZSK, 2ZQX, 2AFW, 2ZBA, and 2HL. The Cessnock gang are still very quiet and have heard 2KJ since the last note. Gordon 2ZSG has finally beaten the "great barrier" to Sydney. How close can you get—Fred 2ZAF is now demonstrating how easy it is to work Sydney using a beam inside the garage, listening to Ross 2ZRU at readability 5." Thanks for the news Mac.

Latest from Sydney Suburbs is the news that John 2ZBP has graduated (?) to the Chewers Anonymous with the receipt of his new call sign, 2AXJ. Len also turned the clock back to 1961, but has not received his new call at the time of writing.

Before we go any further, we'll just refresh your memories with the agenda of coming events, and keep them in mind. The Nov. lecture will be by John 2ZAY on the 10th for 432 Mc. and the Nov. Fox Hunt will be on the 27th, starting at Port Ryde, with the starting time at 10.00. The Fox Dec. Party preceded by a short tx hunt, ending you know where. A Xmas Scramble will be on the 26th, so mark your calendar. Winner of the Sept. Fox Hunt, run by 2AWZ/

2ANF, was Dave 2ZVW, followed by Tim 2ZTM for second place.

Since this will be my last set of notes I would suggest that any news you care to forward, be sent to Dave 2AWZ, the V.h.f. Group Secretary, who will forward them to the right man, 73, ZZBL.

VICTORIA

Jack 3ZPG at Montrose is building up a beam and he should have a very good signal on 6 from his location. Ross 3ZNS is building up a portable rig for field days and it runs about 12w. to a 2E36 with carrier control modulation. Stan 3ZPL at Moe recently acquired a new rx, and Marcello AD10RD, and would like information on it and if anybody could help they could pass it to 3ZNI, address in call book. Andy KAK at Kilda hopes to be on soon running 15w. to an 833 and the rx is an ABP conv. to a home-brew 3MT. The Royal Melbourne Institute of Technology Club, has been very active lately and they run about 70w. to a QZ06/40, the antenna is stacked cloverleaf up 100 ft. Also 3ZEM, the Footscray Tech. Radio Club, were on the air on Education Day and have a special QSL card for the event. Their gear was 15w. to a 2E36, through a converter to a home-brew rx and stacked cloverleaf.

David 3ZOP at Moorabbin recently finished a 9 el. 2 mx beam and is working on a converter for 2 mx. Max 3ZCW, late of the Malles, is now operating from Auburn on 6 mx and he is still mistaken for a DX station. Bill 3ZAD has hadstone has built up a new 6 mx tx running 30w. to an 815, modulated by 807s and his new freq. is 31.28 Mc. (Up amongst the ZLs still!) Bob 3ZDK at Hampton has been listening to the ZLs and it looks like we might hear Bob on 6 soon. Graham 3ZIX and Graham 3ABY have been plotting together lately. 4ZBP has had a good year or so, this is the first time he has been on the air constantly.

QUEENSLAND

The V.h.f. meeting was held on Friday, 20th Sept., with the usual members attending. Great interest was shown in a transistorised construction being constructed by 4ZAX. On Tuesday the 24th, DX came through well, with VK3 being worked for short intervals. A new station on 6 mx is John 4ZFH, although he has had a long time on 6 years or so, this is the first time he has been on the air constantly.

Over the last few months certain people have been talking about c.w. practice. It appears to me that if the full calls want the Z calls to do the Morse they should come on 6 m.f. occasionally and perhaps provide some slow c.w. to a.m. contacts. About the only full call heard on 6 mx is 4ZKX and very rarely 4WD, 4E3 and 4E4.

Latest requirement by the multitude is exact two-way units. About six of these units have found their way into the hands of the future hobbyists. One has his unit converted and is mulling with plans to move to Brisbane. It seems hard to believe what that 3w. transceiver has done. With all the talk of mobility around and at least two stations hoping to pay VK2 a visit at Christmas, we should not have any excuse for getting lost when Interstate, 73, ZDFP.

SOUTH AUSTRALIA

50 Mc.: The only opening on 50 Mc. during August occurred at 1415 hrs. C.S.T. on 11th. 3ZBR/4 to the Simpson Desert, near the VK3 border, was worked by local stations. Glen was using his mobile gear and a 6 el. beam. Interestingly enough, this special opening corresponded with very good tropospheric opening on 144 Mc. (q.v.)

144 Mc.: This band was in fine shape on the week-end of 10th and 11th August. An excellent tropospheric opening to VK3 permitted many contacts. This was the first occasion on which an Adelaide station worked into Melbourne. 3ZJL and 3ZJQ worked into Melbourne stations and they worked many locals, including 5HO, 5ZBR and 5ZDR. Other Victorian stations worked were 3ATN, 3ZCV, 3CI and 3AGV.

Whilst the VK5 beacon station was responsible for the opening being noticed in the first instance, the beacon proved something of

a difficulty because Adelaide stations could not hear the VK3 stations owing to interference from the beacon. The beacon was subsequently closed down for the remainder of the opening, whereupon the QSOs came thick and fast.

432 Mc.: This band is moving slowly, however if the movement is maintained we should have several stations on by the New Year. Brian 5ZBR has a QZ06/40 tripler ready, also Geoff 5ZGP. Cor 5KC can't make up his mind whether to use a 410B or a 417A in his 70 Cm. converter. (What a dilemma!) Brian 5TN is settling for 6CW4s in his 73, ZGCR.

WESTERN AUSTRALIA

The level of activity on the v.h.f. bands in WA is improving considerably as the weather improves and people suddenly realise that the DX season is only a matter of months away. Tony 6ZDT has completed his new 6 mx rig and is very happy. He is hoping to improve his tally of interstate stations this year. John 6JW has made a welcome re-appearance on 6 mx after being off this band since 1948. Another newcomer to the band recently was Tom 6ZBU.

Two metres has been a little more active of late with 144 m.f. being relayed on this band by Bob 6BE, using a b.f.m. The main activity on this band has been cross-band interesting as both 6B and 2 m. Brian 6VV was down from Geraldton recently and is determined to be active on 432 Mc. next year. This 300-mile path should be very interesting as both 6B and 2 m. have been using regularly over this path since last summer.

A V.h.f. Field Day will be held on Sunday, 1st Dec. between 1000 and 1600 hrs. using the same rules as before. The last fox hunt was run by David 6DI and Tom 6DP with the fox hidden in Wembling Downs, some 7 miles from the start. After a few incidents that cannot be published here, the winners were Colin 6ZCI, Barry 6ZCF and Peter 6ZBK. 73, 6ZDB.

TASMANIA

50 Mc.: Nothing out of the ordinary on this band of late. Still the same crew on around 150 hours a week.

144 Mc.: Activity is well and truly on the increase on this band of late. Ian 7ZZ and Edgar 7RY are now active in the south plus return to the band by Lee 7KC and Rick 7ZAT. Also Wolfe 7ZAG. In the north of the island, Den 7DK is conducting Morse practice on 2 mx and also re-broadcasting 7W1 around Launceston. Along the coast, Terry 7TT, Bob 7ZAA and Harry 7ZBH are active and I believe Max 7MX and one or two others are either on or interested. 73, 7ZAV.

PAPUA

50 Mc.: No signals heard on this band during the month, despite a close watch for the first sign of the summer DX season.

144 Mc.: No activities on this band during the month.

Roy 7AU has gone and should be sporting a VK2 call from the Bega area in the near future. Many thanks for everything, Roy, we hope to hear you work you in the coming season. 73, 6ZBV.

GOING S.S.B.?

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Walter Vedder, DL9FF, a member of the Hammarlund DX-pedition to Corsica in July last, writes that they discovered the reason why most stations failed to receive a QSL from FVUC/PC. They learned that the home of Jean had been destroyed in a snow storm a few years ago and most of his logs and cards had been lost in the storm. They are endeavouring to decipher all legible QSOs in the remaining logs, etc., and will take steps to issue QSLs.

The "Denpa Kagaku," Japanese radio magazine, is sponsoring a "Worked All Islands Award" in various grades. As the requirements are a little involved, they are omitted here due to space considerations, but may be had from the W.I.A. Federal QSL Bureau or direct from JA1BN.

Writer has been presented with a copy of the U.S.A. Post Office Division through the generosity of Mort WJDU. This publication is invaluable to stations seeking to qualify for the U.S.A.C.A. award as it lists all Post Offices together with their counties. Writer will make the publication available on loan for limited periods. Contact the Federal QSL Manager.

The Radio Society of Ceylon has sponsored a Worked Ten Ceylon Award. Full details may be had on application to this Bureau or from the Society, P.O. Box 907, Colombo, Ceylon.

The new QSL Bureau address for KGE is Box 445, Agaña, Guam.

A private certificate was made to obtain award certification reciprocity with the A.R.R.L. in order to avoid the long delay, risk of loss of cards, and cost of mailing cards for the A.R.R.L. D.X.C.C. and other awards. WIBDI, the A.R.R.L. Communications Manager, has replied regretting that the request cannot be complied with for the following reasons:—

1. The A.R.R.L. insists on retaining absolute control of all its awards.
2. The multiplicity of present-day DX-peditions requires careful consideration of new country status.
3. If the A.R.R.L. granted reciprocity of awards, it would then be called upon to examine and certify thousands of applications each year from U.S.A. awards for various awards, involving large labour and other costs.

—Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

V.H.F. AWARDS

V.h.f. Awards have recently been issued as follows:—

W.A.S. 50 Mc.—No. 42, VK5KO, 6/5/63.

No. 43, JA1BYM, 14/6/63.

No. 44, JA4IO, 7/10/63.

(The JA contacts were made in 1959-60.)

V.H.F.C.A. No. 25, VK2ZRU, 14, Mc.,

21/3/63.

No. 26, VK4ZCH, 50 Mc.,

28/3/63.

D.X.C.C.—MALAYSIA

As from 16/9/63 the separate listings of Singapore (VS3) Sarawak (VS4), British North Borneo (ZCS) and Malaya (9M2) are cancelled and the following two new and separate listings will be substituted:—

VS1 Singapore and 9M2 Malaya.

VS4 Sarawak and ZCS Sabah (formerly British North Borneo).

Credit may now be obtained for the deleted listings vide Rule 2.2.

W.A.Y.E.C.A.

Twenty-one awards have been made this year to date.

—A. Kissick, VK3KB, Manager.

SILENT KEY

It is with deep regret that we record the passing of:—

VK2FX—Frank Cross.

VK2AJZ—Harry Solomon.

NEW SOUTH WALES

Very little to report this month chaps. The monthly general meeting was held in Wireless Institute Centre on Friday, 23rd August, and a very interested audience was given quite a deal to think over, following Vol's (ZVO) lecture on Communications in the Tropics. The finished late and all present agreed that the subject was one of the most unusual and entertaining ones ever presented.

Since last month's notes, the R.D. Contest has come and gone. We, in VK2 trust that all stations who participated have submitted their logs in order for New South Wales to at least be in the running. This Contest was very well patronised, and it was very pleasing to hear so many of the "not-out-of-the-air" stations in there pitching.

By the time these notes are published, the Scout Jamboree-on-the-Air will have taken place. From all indications this very worth while annual week-end of activity will also be participated in by a goodly number of stations.

As mentioned in the opening paragraph, news is scarce here at the moment, so I will not try and pad things out. See you next month, 73, 25W.

HUNTER BRANCH

This month's notes concern the most important event in the Branch Calendar, that of the annual Convention of the Convention. The convention was held over three days—Friday, Saturday and Sunday. On Friday, 4th Oct., a constructional contest was held at the Tech. College. Those taking part displayed a most interesting variety of gear. In order of appearance, they were Tony Z2CT, with a modified "Minutaur," Jan Ostervreen, three-transistor receiver; Bill Z2CV, g.d.o.; Stuart, 2 m x 2 m; and modulator; Des Z2DN, 2 m x 2 m transceiver; Gordon, 2 m x 2 m; and modulator; and Norm Z2NF, a soldering iron from the junk box. The judges had a most difficult task in deciding who was to take off the prize—Des Z2DN, who won a prize from the Branch. However, it was decided to award this to Des Z2DN. Congratulations also went to the other winners, the committee decided to award a special prize to Jan Ostervreen for his three-transistor receiver.

On Saturday evening the annual Dinner of the Branch was held at the Esplanade Hotel. There were forty present and after a most enjoyable meal the toast to the visitors was proposed by Les 2R1, Branch President. Bill A. Butler, District Radio Inspector, replied on behalf of the visitors. Chris 2PZ proposed the toast to the W.I.A. and this was replied to by Vic 2VL, Divisional President. The guest speaker for the evening was Barry 2ABB, from Muland Ltd., who gave us an idea of the future uses of transistors.

Sunday, 6th Oct., dawned wet and cold and for a time it was thought that the field day activities would be washed out. However as the day went on the weather improved and conditions for transmitter hunting were ideal. The venue at Marmon Point was ideal from the competition viewpoint and there was ample space for car parking. The first event, an all-band scramble with few restrictions, was won by Dave 2AWZ with Harold 2AAH and Bill 2XT also behind. In the first two m x 2 m hunt Les 2RJ cunningly concealed the rig, but it was found, first by Bob 2OA. The 7 Mc. hunt was won by Bill 2XT. The afternoon 2 m x 2 m hunt was a multiple affair, the rigs being hidden by Ian 2ZIF, Les 2RJ and Tony Z2CT. Two hours was almost the time the hunt lasted. The rigs were found by the 2AYF/Z2SG team, Stuart and Gordon.

As far as local news this month is concerned, most of the boys have been preparing for the Convention and for this reason the on-air activities have been at a low ebb. Jim 2AHT was heard working the DX on the week-end of the Convention and it is expected that he will again run in a big score in the VK-2. Otto VK2SI has been awarded the full call, his DL licence being accepted as qualifications. Otto has the rig ready for use and is building a modulator so you can expect to hear him on soon.

Branch members were greatly shocked to hear of the sudden death of Frank Cross, VK2FX, during the month. Frank had become one of Newcastle's best known Amateurs, having been first licensed in 1929. In later years he owned a radio business in Mayfield. The Branch extends profound sympathy to his family.

The date of the November meeting, which was to have been held on the first Friday of the month, has been changed. Bob 2OA is to lecture to the Branch and since the first Friday is also the V.H.I. Group meeting night in Sydney, Bob cannot come until the next week. So remember chaps, the second Friday of November, that's the 8th, is the meeting night. And come along to room 15, classroom block, Technical College, Tighes Hill. Remember it was once called the University College—we've been severely censured for calling it that ever since now on it must be the Tech. College—same place really! See you there, 73, 2AXX.

VICTORIA

WESTERN ZONE

The 6th Oct. saw a large gathering of the boys at Ararat for the Annual Zone Convention. Large numbers of boys from the following zones, 3AZM, 3ATS, 3ADS, 3AFO, 3ATR, 3EP, 3AQD, 3GN, 3AAQ, 3AEQ, 3AKW, 3AGP, 3NN and 3ON, gave us a very good show. 3AGP, 3CU and Keith 3ZV, 3AR, 3AFU, 3ANQ and also Brian McDonald with a VK3Z call. Our new President of the Zone is Bert 3EP, who will ably continue the good work of Mer 3AFO, the retiring President. Unanimously re-elected for Secretary was Bill 3AKW. Bill's term as a Zone Secretary must be running into a record very soon. Vice-Presidents are Vic 3AEQ and Wilson 3AFU.

On the suggestion of 3AAQ it was decided to streamline our zone hook-ups on 80 m x 30 m Wednesday nights. Bert 3EP has been nominated Zone Co-ordinator for calling in stations, with each station limited to two minutes per call and this will mean a lot of fun and get-together with no one tied up for long periods unnecessarily and I am sure will attract larger attendances. It was very nice to see familiar welcome faces from the South Western Zone in the form of 3AGD and 3AEQ.

After the meeting the group proceeded to an inspection of Channel 3 and Channel 6 Ballarat and our thanks go to the staff of both stations who spared no effort in showing the group the entire set-up from start to finish. The Convention was rounded off with a Dinner and an inspection of new equipment, followed by a short showing of films by 3ATR on a recent trip to Tahiti.

Wireless Institute of Australia

Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 10th FEB, 1964

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—
Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne
Phone: 41-9535, 10 a.m. to 3 p.m., or the Class Manager on either of the above evenings.

MIDLAND ZONE

Activities for the month of Sept. have subsided somewhat since the previous month as well as the rest of the members. Unfortunately I had to make an urgent trip to VK4 early in the month and was off the air for a while. This, of course, gave me with nothing to report on except my own activities, which are confined to operations on the 20 mx band and the 40mx band. The only member contacted for the month was 3MO, with Ian putting in a hefty signal here on 14 Mc. 73, 3ND.

MOORABBIN AND DISTRICT RADIO CLUB

Several enjoyable outings by the club in recent months have included a tx hunt and a trip to the Blue Mountains. The latter was attended by some 39 persons in 13 cars, including Scouts from 8th Footscray and 1st and 3rd Brigades Troops. Club members were out on Dec. 6 and with the warmer weather this was about as an even better event, and I will be sorry to miss it but expect to be en route to VK6 land for four weeks on that date. However the hunt on 80 mx is open to non members also and starts at 2000 hours.

A group of 10 Vile and Vile and Vile (as applicable) attended the bowling night and it certainly showed up some dark horses—must have been practicing in their lunch time. It was a winning night.

At the club "night on the air" on Oct. 4 the younger members stirred up some DX. One of the members, Mark 4MJ, who is a 32Mq (s. YL) may have had added the necessary glamour to attract the KH8s—could be said to have been "the" man. The DX was added to the amusement of the playing tape recording of some of the night's discussions (?) he taped.

Dear that Bob 3NZ is now allowed up and about. We all wish you a speedy recovery, Bob, and back to using your f.s.b.s. gear. Which, I hope, will be a great help. The discussion night on s.s.b. and its construction, this month led by Bill JE, 73, 3ARD.

QUEENSLAND

Weather is topical—not tropical—in VK4 once more; even in Amateur circles. It seems the class of the month is the weather. The same shortly after we last went to press and more than one antenna suffered. Especially that of 4VJ which, rather than being prominent, to say the least, at any time. Before the wind we had quite a lot of rain but not as much as in VK4 where, "it said, they no longer have any rain." The weather was the Anyhow, 4DA is sort of jubilant, along with 4OK, 4RH and other assorted landed gentry, about the weather. It is a relief, rather than should be the odd new tx on the air.

Then after the Sept. general meeting the lecture subject was—yes, you guessed—weather. Actually, the application of radio and radar to the gathering and transmission of weather data, as related by 4ZGM. The evening was unseasonably warm and poses to remove the coat and loosen the tie and to restore modulation, which had failed due to bias build-up on the antenna, were the greatest. The benches by most uncharitable remarks about who should be prepared for the current weather.

During the month we achieved our "by Christmas" target of 500 VK4 members. A lot of the new members are in the Branch clubs which are in the process of becoming members. The Central Qld. Branch at Rockhampton is especially active with classes and some really good lectures are broadcast by the Branch station on 4IR which is a 40mhz. Are these heard in other Divisions?

The Divisional station is looking up. Alf has been heard on 4IR and has been heard on the taped news from the country boys. Seems they can all talk but can't write. Anyhow it's a good idea and goes over well when the tapes are up to date. The frequency recorder and the different recorders seems to vary some what.

Ross 4RW is still getting cards the easy way, via the services of a helpful pirate. Some are rare DX too. Are you sure you aren't sleeping on it? The pirate is enough, some things make me wonder about the security of the people who can keep on using someone else's call sign like that. Ted 4EJ is busy on a rx and has been heard on 4IR. Recall after how it performs Ted. The V.h.f. boys up Cairns have the fingers crossed for a Trans-equatorial breakthrough which has been heard in the northern sector stations. 73, 4ZGM.

WIDE BAY AND BURNETT BRANCH

Jimmy 4MZ left home a few weeks ago (now don't get me wrong, he took his XYL left with him) and headed north to see how the

other fellows lived, worked and played. He visited Vic 4B (Bundaberg), Frank 4FN (Townsville), Claude 4UX (Ar. Charlie 4BQ (Graftonville) and others. Lewis 2AWS, from P. Macquarie, was filling in a few days in the Sunshine Coast area and was on his way over to Viv 4BJ to say a few words in the Kookaburra session when he ran over the road and upon stopping, he was so sorry to the owner found himself speaking to a previous neighbour from his own home town. One never knows whom he is going to run into or where he is in the driving world.

The Bundaberg boys like to do the difficult first, the impossible will come a little later. Bill Sobbens and Roy Spotswood have been the driving force in the Bundaberg area. It is reported that Les 4XJ in one attempt to pull Bill in stretched his converter to breaking point, but like the elephant's trunk, he has come back to normal again. It must be good fun on this band as Bill 4WH is also thinking of joining this band any day now. So you boys who want your W.A.S. certificate for 2 mx there's a tip for the VK4 end of it.

Frank 4FN tells of the fellow who constructed his t.v. antenna by welding empty beer containers together. Just as well it was not his car radio aerial or he would have been in the hospital. The influence.

The boys of the Branch met in Maryborough last month to have a draw for some disposals gear, and some went home happy, others a little less so. The draw was a good one for us if we got all we wanted in this life, although it is very nice if you can manage it.

Mc Bert Ward, who is ex-33WD, and who brought his 160 mx gear out with him and hopes to be using a VK4 call soon, so look out.

See you next month, 73, Fred Cox.

CENTRAL QUEENSLAND BRANCH

4FN's main activity is on 80 mx with occasional bursts on 40. Frank has just finished an f.b. mod. monitor and noise and distortion meter. Old friends of Mark 4MJ will be sorry to hear that he has been well. He is soon OM, we're all pulling for you. Joe Waterworth has built up a code practice oscillator for the class. He has been well. He is having no end of trouble trying to get the Gowler turrets in the new rx to go. Anyone with experience on these things could drop Joe a line. He is a real live one.

Lance 4ZAZ has a 9 Mc. phasing s.s.b. rig on 144 Mc., all home-brewed, and working f.b. the linear should soon be completed using a 400W 4H4 tube. He has been well. He is G-land on the last leg of his world tour and appears to have looted four continents for souvenirs. He is a real live one. "Free way," so has had to go all modern with transistor p.s. for the mobile. Yours truly 2ZCKI has the usual pile of unfinished projects including a new s.s.b. tunesable 144 (nearly finished) and 50 Mc. phasing, printed circuit, all transistor exciter, which appears very promising. If I can get the bugs out of this, will probably knock out an article on same. (The aim is 150w. p.p.s.s.b. on 6 in. 1½ cubic feet including p.a.)

TOWNSVILLE AND DISTRICT

Arthur 4FE dropped in for a brief talk on the way from Normanston to Melbourne on leaving the club. He has been well. He has been touring the best part of the State. Stayed a few days and had the time of his life. He is a real live one. He is a real live one. He is a real live one.

Very pleased to hear that Jess, XYL of 4UX, has at last got her hearing back. Believe it or not, she has been well. She is a real live one. She is a real live one. She is a real live one.

The boys in Cairns have been asked to collect times and durations of the openings of the Tropical Scatter on v.h.f. and forward reports to the local university here. So far I have not heard of any response.

Alan 4PS is busy overhauling the gear as he expects an extra crowd of Scouts on Jamboree week-end. Another welcome visitor turned up today in the person of a visitor who has finished at Alice Springs and is touring round looking for a nice place to settle in; maybe enjoy our climate. 73, Bob 4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual in the clubrooms to a slightly below average attendance, about 110 members and visitors to be exact, and took the form of a 40mhz. session. The subject was Organised by the V.h.f. Group, the subject

was handled in turn by Gary 5ZK, Al 5ZCR and Cor 5ZCK. Gary discussed propagation, Al the stepped up and down the band and feedlines, Gary came back with an encore enlarged on transmitters. Al, not to be outdone, was last and discussed the audience there and wind up the proceedings. Cor spoke at length on test equipment for the band. In this way the audience was kept interested in the entire, although all of the lectures stressed that they could have talked a lot longer on the subject if time had permitted. Judging by the look on the audience's faces, I think out the lecture, a keen interest is being aroused in the band. The V.h.f. Group is to be congratulated for the meeting and also as to the choice of their speakers.

Among the visitors were Lindsay 2ON, Eric 3ANQ and Brian 5ZFT. We thank them for their company and hope to see them again sometime.

Gordon 3XU has just arrived back in VK5 after a business trip to W. land. Had a chat with Lindsay 2ON at the meeting. It appears that he had just returned from VK6 after attending an eye doctor's congress for a fortnight, and although he stressed how busy he had been over there, he let slip that he had a chat to 6VK, 6RY, 6RU and 6MK. I suppose he says the same to all the scribes that he visits. I hope to see him again. The VK5 notes and even went as far as to say that he likes them. Thank-you for those kind words. I hope the editor reads this, he might appreciate me more!

Listened in to a three-way contact on 7 Mc. the other day between Joe 5JT, Roy 5DA and "Gordon" of W. land. He said to me to note that the combined ages of the three was 198 years, but I won't tell any tales out of school, as who made up the bulk of the total years.

Received a letter from Fred, the father of John 5ZJH, telling me of John's unfortunate early death. Fred was leaving the Institute of Technology on the night of Thursday, 12th Sept. At the time of writing he is in hospital at Ward of the Royal Adelaide Hospital, East Wing, with a broken thigh and naturally will be off the air for some time. Sorry to see it, John, and hope by the time this letter is being read he will be again on the air.

Talking of accidents, Jack 5LR was mixed up in a smash over the week-end. He was crossing the South Road at about midnight on the night of the 10th. He was badly knocked about and admitted to hospital with a compound fracture of the right arm and a broken leg.

The above two paragraphs brings to mind that Dr. Ross Adey (ex-5AJ) and one time VK3 member of Council, a former reader in anatomy at the University of Adelaide, and now professor of anatomy and physiology at the University of California, has been given the first Charles Judson Herrick award for meritorious contributions to the advancement of radio. Congratulations are the order of the day.

Noticed that Harry Gillard passed away this month. He will be better remembered for his photographic ability and knowledge, although he was keen on Radio and attended many meetings of the Division back a few years ago. Our sympathy is extended to his wife Eileen and also to Ross and John.

A certain pen-friend of mine in VK1 will be interested and pleased to know that a committee has been proposed to raise with the Y.R.A. a fund for the purpose of providing Youth Radio training in VK5 along lines which, at the moment, must remain a deep and dark secret.

Periodically a member will contact the Secretary or Treasurer about the non-delivery of the magazine, and more often than not the reason is that their subscription to the Division has lapsed. Sometimes of course the works have jammed up and a genuine mistake has occurred. But the subscription to the magazine mysteriously stops arriving don't suspect black magic, personal animosity, discrimination, or the colour of your tie, but check up on your subscription and if it is OK, start bouncing the ball.

Les 5NJ still going merrily on his mobile with his tough gear for litigation. The converter looked like coming to an abrupt stop. The converter started playing tricks and the trouble was finally located in the transistor mixer, which was the cause of the trouble. The converter much as almost reached the end of its tether. Nice signal Les. Brian 50J, when heard here, was in the midst of organising a search for the missing grid current to his final. Extra good signal at the time, but had his fingers crossed in case Claret in the 2H and in to see me on his return from Perth and also west, and brought me greetings and salutations from some character over there known as 50J. He has been heard on 40mhz. and heard you at times on 7 Mc., but you were

HAMADS

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Have on hand a further report from 6YL/6RX combination. Latest is that a boy harmonic arrived recently. Congrats, and best wishes all round.

New arrivals brings to mind that Lionel Allen (ex 9LA) will be transferred back from Cocos is, at Christmas time to this State.

As you are no doubt aware, s.s.b. is claiming victims. A fairly late claimant is Ted 6JG of Bunbury, who has been doing some extensive work on this side of the business. One of the troubles which Ted was having recently was the instability in his v.f.o. variation in level and frequency, and so on. Some concentrated investigation into the box revealed a small compact nest of black ants cosily ensconced amongst the bits. Guess you need ant suppressors as well as carrier suppression Ted. Trust all OK now.

Another one of the country boys paid us a visit recently, Cyril 6CN of Kellerberrin. Pleased to see you Cyril and I believe you have some nice gear that hasn't much use for the last four months or so. Also a recent visitor from Geraldton was 6VV, who says thanks to the 80 mc gang for their efforts when the Industrial Exhibition gave an opportunity for the Geraldton boys to show the public what a Ham does.

Although people like Les 6WL and Alan 6AB are going sideband, we find that people like Cedric 6CD, who only recently got his full ticket, and mobile and home, still have a table-top rig, all bands, at home as well.

Advancing towards a full ticket is Bob 6ZCY. Bob is on the way with his horse now, but under the wings of the Windmill, and with the first harmonic, a boy, and this is liable to slow Bob up. Congrats all round around.

All visitors who have been into Jim 6RU's shack will know there is very little wall space available for hanging awards and cards and things. This is because where the first space is occupied by calendars donated by Uncle Dave in the States. They're not all the current year's, but what were taken. Anyway, the whole point is that Jim recently won an award, the W.A.Z. phone award from "CQ". Now we don't doubt that this is a difficult one to get. Jim has a photo of it on the wall—where are you going to find room in the shack to hang it? 73, 6LS.

TASMANIA

With our usual scribbles, Ian 7ZZ, still out of action, it is my pleasure to write these notes for the next month. The next meeting, don't forget the Hamfest to be held on 2nd and 3rd Nov. at Campbell Town. This promises to be an eventful and interesting three days. So tune up that mobile gear and come along. Bill 7YV has a very interesting device working on h.f. at the moment. The tx is completely electronically controlled, no being no carrier with no modulation and it is impossible to over modulate, the carrier being always 100 per cent. filled with other details to hand, but I'm assured that it is not the usual vox system.

VE3BEI, from London, Ontario, is teaching at the Hobart High School at the moment. Welcome to Tasmania, and hope to have a pleasant one. The Royal Yacht Club transceiver under construction by this Division is just about ready for testing. Ted 7EJ finds that the new s.s.b. rig is better without an antenna coupler. He is getting much more output now and the unit seems easier to tune. Terry TT is building a rig for 100 mc and I believe TMX is getting the bug too. After a long absence, 7ZAG is with us again on 2, and Dave 7ZAY has a new rig going.

Remember the 1.7.73, 7ZAV.

NORTH-WEST ZONE

Firstly, I'm sure all will join me in congratulating Basil on getting his ticket. Alreux 7BL is well known on 40 and 80 mc, having made some 136 contacts in three weeks! Very good. Basil, I think you have fitted a two-stage tuned lattice filter to his main line to keep George 7XL from spreading all over the dial, I believe. Terry has his 822 rx going and hopes to have it on the air in the near future. David 7MS is still "rig-less" at present, but a formidable s.s.b. rig is slowly but surely being built to astound us. George 7EJ is building a filter-generators but is still using the phasing unit at present on the air. Believe he really makes the a.m. boys look sick on the Sunday round-up when conditions are bad.

Kevin 7ZAH was heard in Launceston from Ulverston on 80 mc. Basil, I think that about a record from two places. Meetings have been well attended lately, and another pleasing note is that our fringes are still in a healthy state, although in November roll up all who can. See you there, 73, 7ZBH.

surrounded by so many stations calling you that my modesty did not permit me to barge in. Should be "shrinking violet—not pansy."

Although the Editor (may his red pencil never droop) will probably sub this paragraph under "shrinking violet—not pansy," I recently worked a W station. I did, true as true, and the said W asked me if I ever saw Harry 3HN from Port Adelaide. I said, "No, but I can please pass on his 73. Well, to be truthful, I have not seen or heard Harry for so long that I feel quite old when I think of it. However, he is in the good book, so if by any chance he is reading this, W5CIE wishes to be remembered; me too Harry, how is the fire burning?"

Johnny 5JW heard going lickety-split on c.w. close to the edge of 7 Mc. band the other early evening. Thought it was a commercial, but again my modest 40 w.p.m. seemed so slow in comparison that I hesitated. What's that? I couldn't send at 4 w.p.m., let alone 40. Oh! Is that so, that is all that you know. I could send 4 w.p.m. with my foot. That's what it sounds like? Oh! getting nasty now eh?

Jim 5JA now out and about, is at the moment of writing lazing on the beach at Port Vincent, or Honolulu, or Waikiki, or somewhere. Anyway, that all goes to prove that he is completely recovered after his operation. Nice work, Jim.

Bruce 5OR as one of his devil-may-care duds for 5RZ, decided to pay his Amateur licence renewal at a Post Office, and was quite overcome to find that the officer behind the counter was only too pleased to see him. Unfortunately, just as the receipt was nearly finished, a senior officer came along and said the licence must be renewed at the Post Office. Bruce, uncertain as to whether to write to Max 5ARZ immediately or to contact me, chose the easier way and tracked off to the Accounts Branch in Post Office Place. This really warmed up here because the Accounts Branch had moved to Currie Street probably a month or so ago. Bruce, who had waited 15 minutes whilst the complicated job of making out a receipt was completed, Bruce, by this time, had done it only too easily. He wrote a stiff letter on cardboard to the V.L.P.s, receiving one week later a letter of regret and a definite statement that the licence had been cancelled. It had been possible to renew the licence at any Post Office. He is now awaiting the usual follow-up letter telling him that no record of payment of his licence is available and that he will shortly be cancelled; shot at dawn, electrocuted, or possibly come to a sticky end. The VK5 who has been able to renew his licence at a P.O. and nothing further has happened. He hopes!

It would seem that the many rumours floating about that W.I.C.E.N. is in a somewhat poor shape. There are talks of resignations due to lack of co-operation from members. There are suggestions from members that W.I.C.E.N. needs new blood up top, many seem to think that it is resting on whatever laurels it has possessed. In fact from all the signs it definitely appears that W.I.C.E.N. is about to topple. This is a pity, although I would be the first to admit that it is never going to reach the heights envisaged by its founder, Jim 5JK, but at least it had possibilities and it is to be hoped that someone will find the courage to step in and save it. I have put its feet. I notice in my latest copy of "Info", the official journal of the Elizabeth Amateur Radio Club, that the Club has just been considered an activity of the Club, so apparently the rot has set in up there. As I said before, this is a pity, but to be quite fair, I suppose about any club, but it is entirely unexpected. 73, de 5PS—Pansy to you.

WESTERN AUSTRALIA

Vic. 6VK has got the bugs out of the 6DQs on s.s.b. Vic found that to use it as a linear amp would be better than using it as a linear. Vic also mentioned that he had found the connections on the modulation transformer for 6W1 incorrect. Apparently a manufacturing fault, which after correction, gave reports of broadcast quality.

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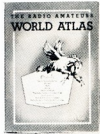


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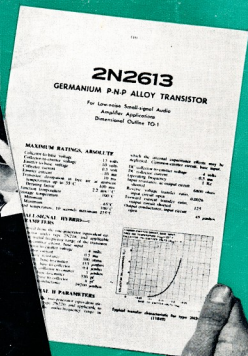
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